FILE NO.

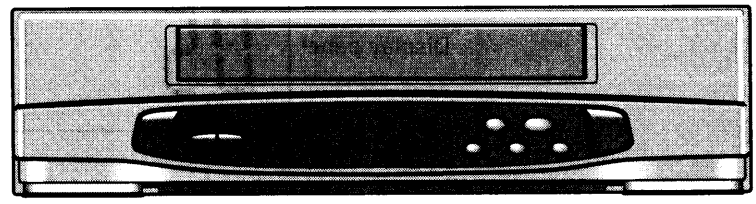
SANYO

SERVICE MANUAL

Video Cassette Recorder

VHR-495E
(U.K.)

VHR-475G
(Germany)



VHS
PAL

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CIRCUIT DIAGRAMS (Refer to the separate volume)

Please see other materials with Reference No. given in table below.

Materials	Model No.	Reference No.
Mechanism Manual	V95 I Mechanism	MM531433

PRODUCT SAFETY NOTICE

The components designated by a symbol (⚠) in this schematic diagram designates components whose value are of special significance to product safety. Should any component designated by a symbol need to be replaced, use only the part designated in the Parts List. Do not deviate from the resistance, wattage, and voltage ratings shown.

NOTE: 1. Parts order must contain model number, part number, and description.
2. Substitute parts may be supplied as the service parts.
3. N.S.P.: Not available as service parts.

Design and specifications are subject to change without notice.

PP4/E, G2 143 155 00, 31

REFERENCE No. SM531434

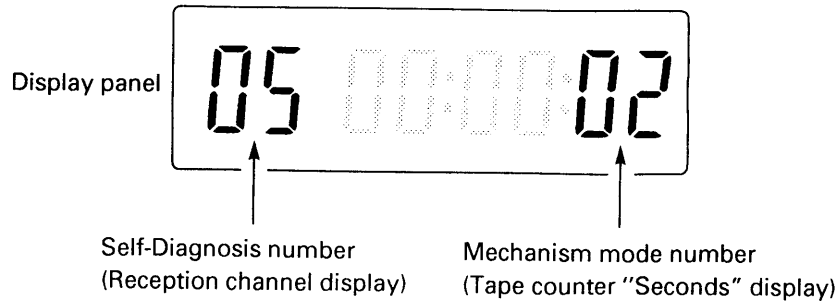
SELF-DIAGNOSIS DISPLAY

Mechanism Mode Display/Head Output Drop Warning Display/Cylinder Rotation Accumulated Time Display

This unit displays the diagnosis contents of abnormalities and the mechanism mode on its display panel in 2-digit numbers. When the head playback output has dropped, the "L" sign will be blinked. Some models (listed later) will also display the cylinder rotation accumulated time.
These display shows the outline of the problems. Use it as a reference when servicing the unit.

1. Self-Diagnosis Contents and Mechanism Mode Display

- When the STOP button on the remote control is pressed for about 10 seconds continuously, the self- diagnosis number will be displayed on the reception channel display of the display panel and number indicating the failed mechanism mode (changed mode when being shifted) on the tape counter "seconds" display for 3 seconds each.
- During self-diagnosis display, displays other than the diagnosis number/mechanism mode number and the cylinder accumulated rotation time display described later (some models only) will be turned off and when displays end, the normal display will be returned automatically.
- Refer to "Self-Diagnosis Contents" for the self-diagnosis numbers and the "Mechanism Mode Display Contents" for the mechanism mode numbers.



Self-Diagnosis Contents

No.	Problem	Main Possible Cause	Mechanism Operations and State After Occurrence
00	There is no abnormality in the mechanism.		
01	The cylinder motor does not rotate.	• The cylinder motor is faulty. • The control of the cylinder motor is faulty. • The tape winds around the cylinder.	Shifts to the STOP mode.
02	The take-up reel does not rotate.	• The take-up reel is caught. • The reel belt is faulty. • The take-up torque has decreased.	Shifts to the STOP mode.
03	The capstan motor does not rotate.	• The capstan motor is faulty. • The control of the capstan motor is faulty.	Shifts to the STOP mode.
04	The tape cannot be loaded with the cassette inserted. (But unloading can be performed.)	• Error in the operations of the tape loading mechanism. • Foreign particles in the tape load-ing mechanism. • The tape end sensor is faulty. • The reel brake of the tape cassette has not been released.	Unloads, shifts to the INITIAL mode, and the power goes off.
05	Tape loading and unloading cannot be performed with the cassette inserted.	• The tape guide is caught. • The loading motor is faulty. • The control of the loading motor is faulty.	The power is forcibly turned off with the mechanism at its current position.

No.	Problem	Main Possible Cause	Mechanism Operations and State After Occurrence
06	Front unloading cannot be performed when ejecting the cassette. (Front loading can be performed.)	• The cassette drive mechanism is faulty. • The front door is caught.	Front loads and shifts to the STOP or INITIAL mode. • When the power switch is turned on before eject operations: Shifts to the STOP mode. • When the power switch is turned off before eject operations: Shifts to the INITIAL mode and the power goes off.
07	Front loading and front unloading cannot be performed when ejecting the cassette.	• The tape cassette is caught in the cassette drive mechanism. • The main cam and front rack gear of the front loading mechanism have not engaged properly. • The gears of the front loading drive mechanism have not engaged properly.	The power is forcibly turned off with the mechanism at its current position.
08	The mechanism becomes 1 (REVIEW) while moving from 2 (IDLER), 3(STILL), 4 (BRAKE), and to 5 (STOP).	• The mechanism mode switch contact is faulty.	The power is forcibly turned off with the mechanism at its current position.
09	The mechanism becomes 7 (INITIAL) while moving from 1 (REVIEW), 2 (IDLER), 3(STILL), 4 (BRAKE), and to 5 (STOP).	• The mechanism mode switch contact is faulty.	Carries out tape take-up operations, shifts to the INITIAL mode, and the power goes off.

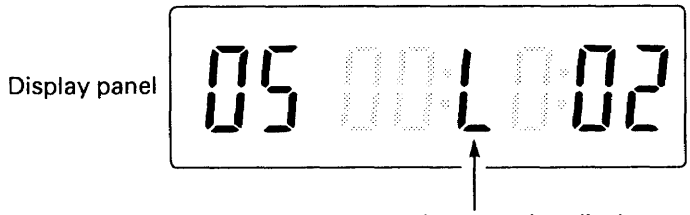
Note: For details of mechanism operations corresponding to the mechanism positions of the self-diagnosis numbers 08 and 09 above, refer to the separate volume on the V95 I mechanism manual.
These manual reference numbers are shown in the cover.

Mechanism Mode Display Contents

Mode No.	Mechanism Mode	Mode No.	Mechanism Mode	Mode No.	Mechanism Mode
00	CASSETTE OUT	08	PLAY	16	VIDEO INSERT
01	STANDBY	09	REC	17	VIDEO INSERT – PAUSE
02	STOP	10	AUDIO DUBBING	18	AUDIO/VIDEO INSERT
03	STILL	11	X2 SPEED PLAY	19	REVERSE X2 SPEED PLAY
04	REC-PAUSE	12	CUE		
05	AUDIO DUBBING – PAUSE	13	REVIEW		
06	FRAME ADVANCE	14	FAST FORWARD		
07	SLOW	15	REWIND	99	OTHERS

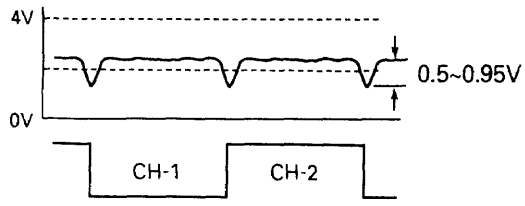
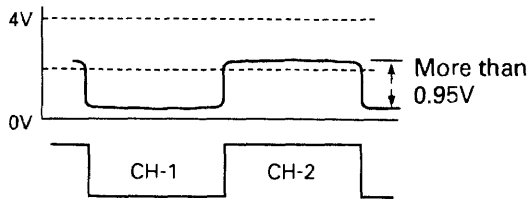
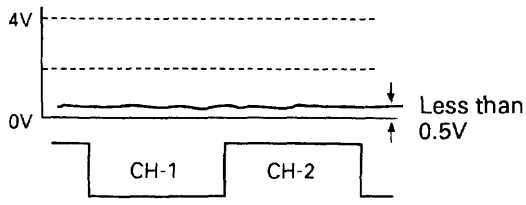
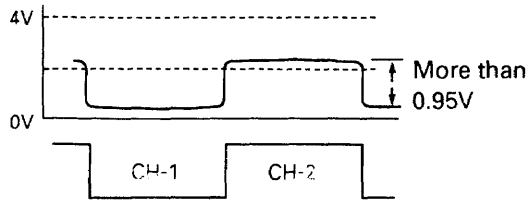
2. Head Output Drop Warning Display

- When the STOP button on the remote control is pressed for 10 seconds continuously 10 seconds after play starts, "L" will be displayed blinking at the first digit of the minutes position on the tape counter when the head output is lower than the specified value to indicate an abnormality.
- The cause of the abnormality may be due to drop in the playback output caused by drop in the efficiency of the cassette used or head clogging. Refer to "Head Playback Output Voltage Check" as a means to judge the abnormality.



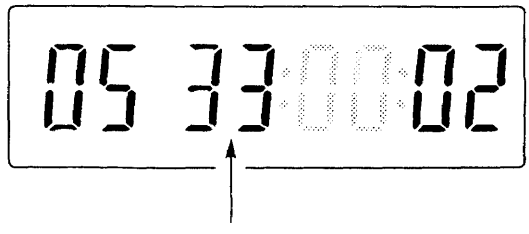
Head output drop warning display
(Tape counter "1st digit of Minutes." position)

Head playback output voltage check

Cassette Used	Warning Display	Envelope Detection Output Voltage	Main Cause
Cassette with normal playback output	——	Envelope detection output (IC301 Pin 25 or C3016 HOT side: see Fig. 2-1-1) Switching pulse (TP183: see Fig. 2-1-2) 	When the output voltage difference of the two channels is 0.5 to 0.95V • The video heads of both are normal
Recorded cassette (With tabs)	"L" blinking	Envelope detection output (IC301 Pin 25 or C3016 HOT side: see Fig. 2-1-1) Switching pulse (TP183: see Fig. 2-1-2) 	When the output voltage difference of the two channels is more than 0.95V • Tracking adjustment has not been performed accurately • One video head is clogged • One video head has worn out
	"L" blinking	Envelope detection output (IC301 Pin 25 or C3016 HOT side: see Fig. 2-1-1) Switching pulse (TP183: see Fig. 2-1-2) 	When the average output voltage of the two channels is less than 0.5V • Tracking adjustment has not been performed accurately • Both video heads are clogged • Both video heads have worn out
Rental cassette (Without tabs)	"L" blinking	Envelope detection output (IC301 Pin 25 or C3016 HOT side: see Fig. 2-1-1) Switching pulse (TP183: see Fig. 2-1-2) 	When the output voltage difference of the two channels is more than 0.95V • Tracking adjustment has not been performed accurately • One video head is clogged • One video head has worn out
	Some rental cassettes may have extremely low video playback outputs even when both video heads are normal. As the average output voltage of the two heads may be less than 0.5V for some, no warning displays will be shown.		

3. Cylinder rotation accumulated time display Only VHR-495E employs this function (However, this function will be equipped only from the middle of production.

- Press the STOP button on the remote control for approximately 10 seconds and the cylinder rotation accumulated time excluding the cassette out and standby operation time will be displayed on the "Hours" display in units of 100 hours. ("33" will be displayed for 3 seconds for 3,300 to 3,399 hours.)
- To erase the cylinder rotation accumulated time display, press the RESET button on the remote control during the accumulated time display.

Display panel 

Cylinder rotation accumulated display (Tape counter "Hours" display)

1. DISASSEMBLY

1-1. REMOVAL OF CABINET, MECHANISM UNIT, AND MAIN BOARD

REMOVING THE CABINET PARTS (Fig. 1-1-1)

1. Remove the cabinet and bottom cover by removing the four screws ① and four screws ②.
2. Remove the front panel by removing the locks of the clamps (A) using a screwdriver, etc. and slightly rotating the bottom part in the direction of the arrow.

Notes:
- Electrical adjustments for the this model can be performed with only the cabinet removed.
- When replacing the bottom cover, do not tighten the screws ② too much. Excess tightness may damage the screw taps on the chassis.

REMOVING THE MECHANISM MAIN UNIT AND THE CP-1 PWB ASSEMBLY (Fig.1-1-2 and 1-1-3)

After removing the cabinet parts, remove the mechanism unit and the CP-1 PWB assembly connected as follows.

1. Spread out the lock clamps (C) in the arrow direction slightly and remove the TM-1 PWB as shown in Fig. 1-1-2.
2. Remove the screw ④ at the back of the chassis.
3. Remove the red screw ⑤ in the chassis, remove the red screw ⑥, and remove the holder in this order.
4. Remove the two screws ⑦ and two screws ⑧ of the mechanism unit. The two screws ⑧ of the cassette tray can be removed easily by pushing the tray lock lever in the arrow direction to remove the lock as shown in the enlarge view A and by pushing the lid opener lever in the arrow direction to remove the lock as shown in the enlarge view B.
5. Lift up the whole mechanism unit and main board (CP-1 PWB assembly), and as shown in Fig. 1-1-3, push the two lock claws (D) of the chassis in the arrow direction so that they can be removed from the chassis.

M-PP4H/G-1

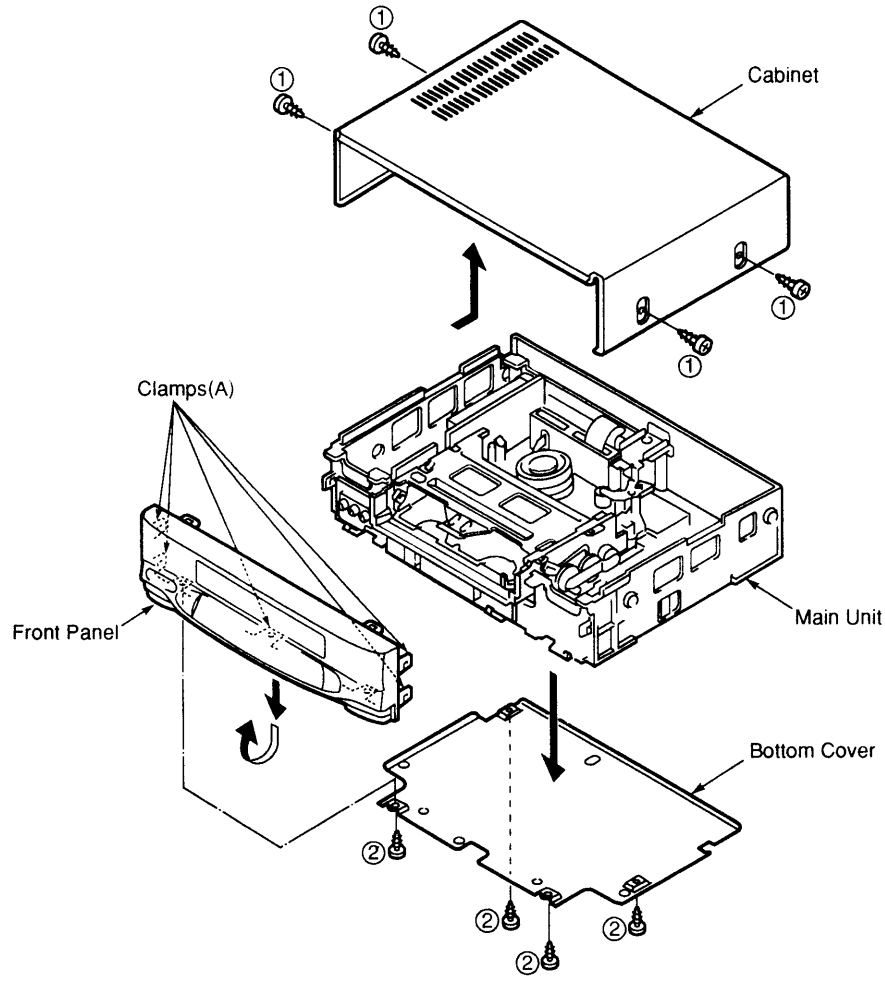


Fig. 1-1-1

M-PP2L/E-2

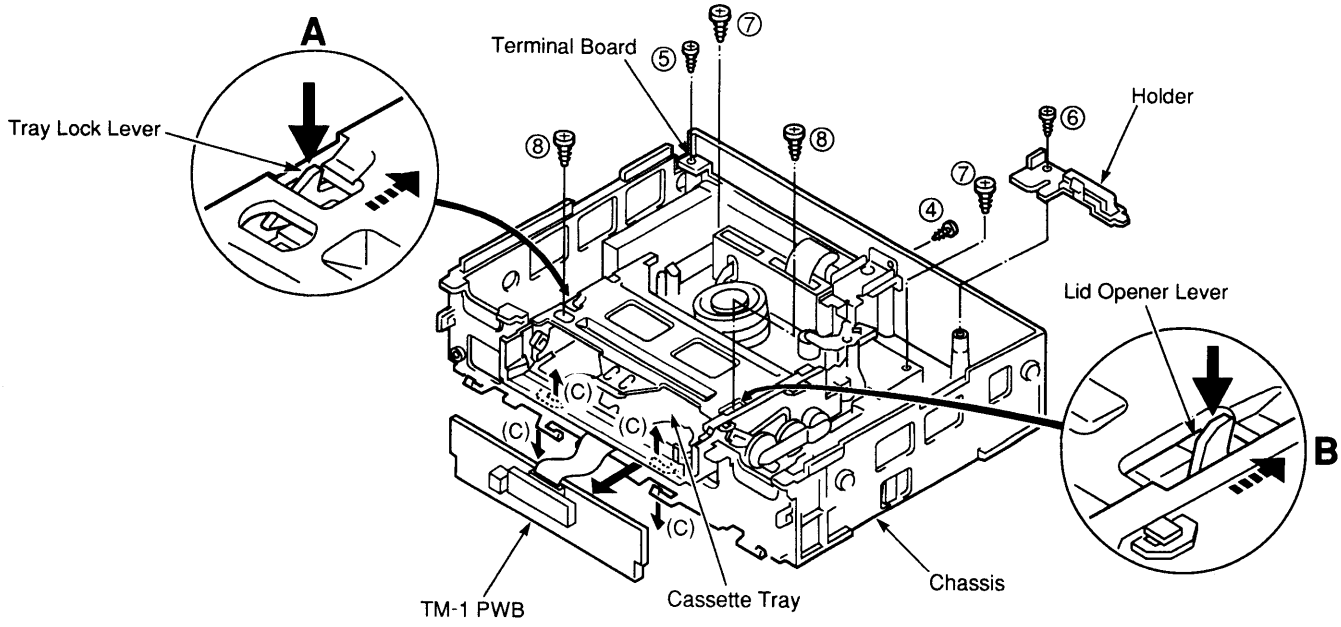


Fig. 1-1-2

M-PP2L/E-3

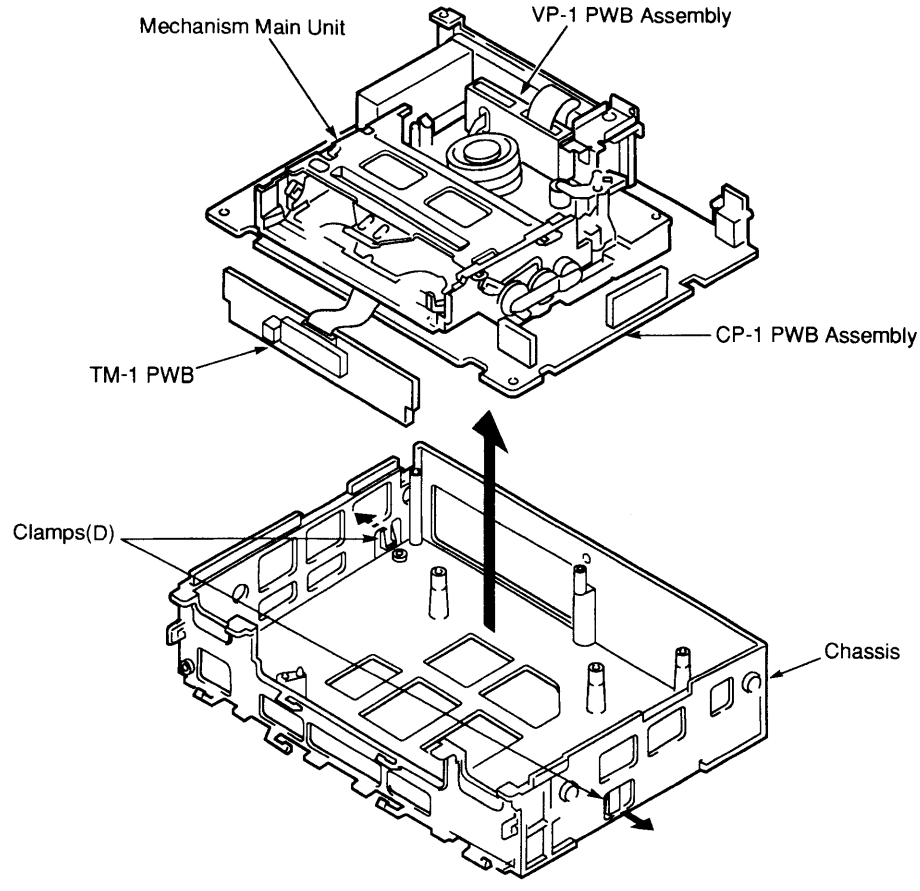


Fig. 1-1-3

1-2. TEMPORARILY SETTING UP AND CONNECTING CP-1 PWB ASSEMBLY

The following is an example of how to place and connect the main board without a jig, when repairing the CP-1 PWB assembly.

1. Place the mechanism unit and main board up side down as a whole on a flat surface with the foil side of the main board facing up.
2. Operate the unit using the buttons on TM-1 PWB or the remote control.

M-PP4H/G-4

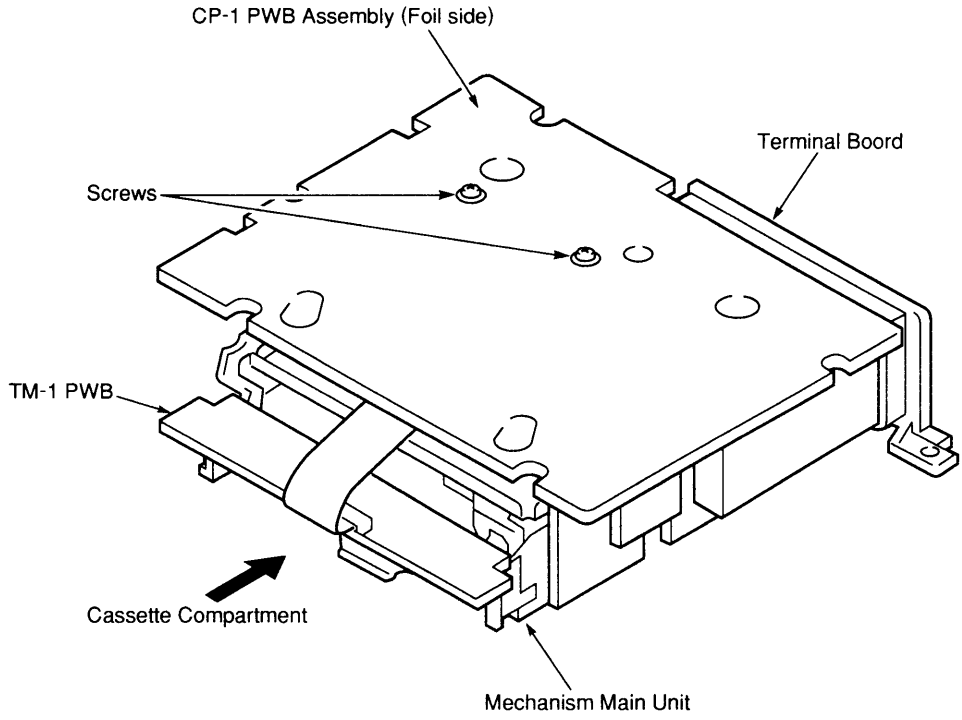


Fig. 1-1-4

1-3. INSTALLATION OF THE FRONT PANEL

When installing the front panel to the chassis after repaires and adjustments.

1. Pressing down the door opener lever of the mechanism main unit.
2. Set the cassette door to half-opened state as shown in Fig.1-1-5, and install the front panel to the chassis.

Note: Opened cassette door position does not install the front panel to the chassis.

M-PP4H/G-5

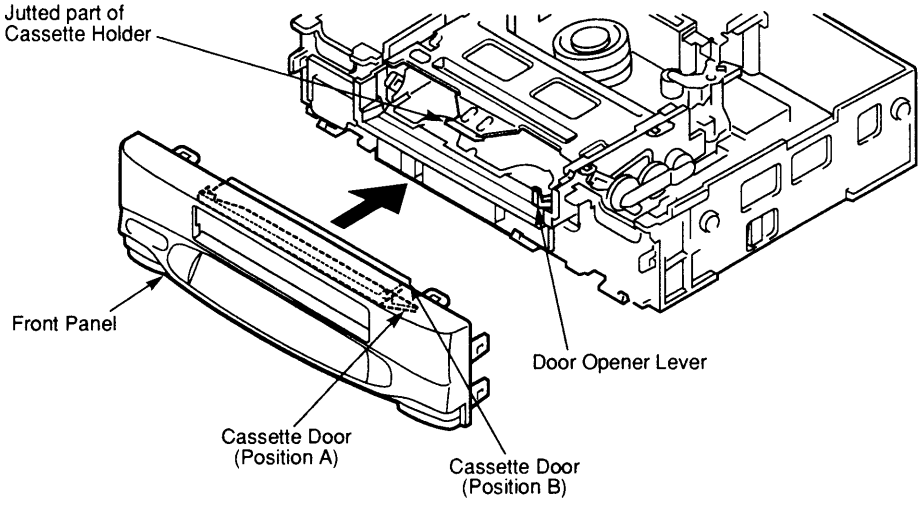
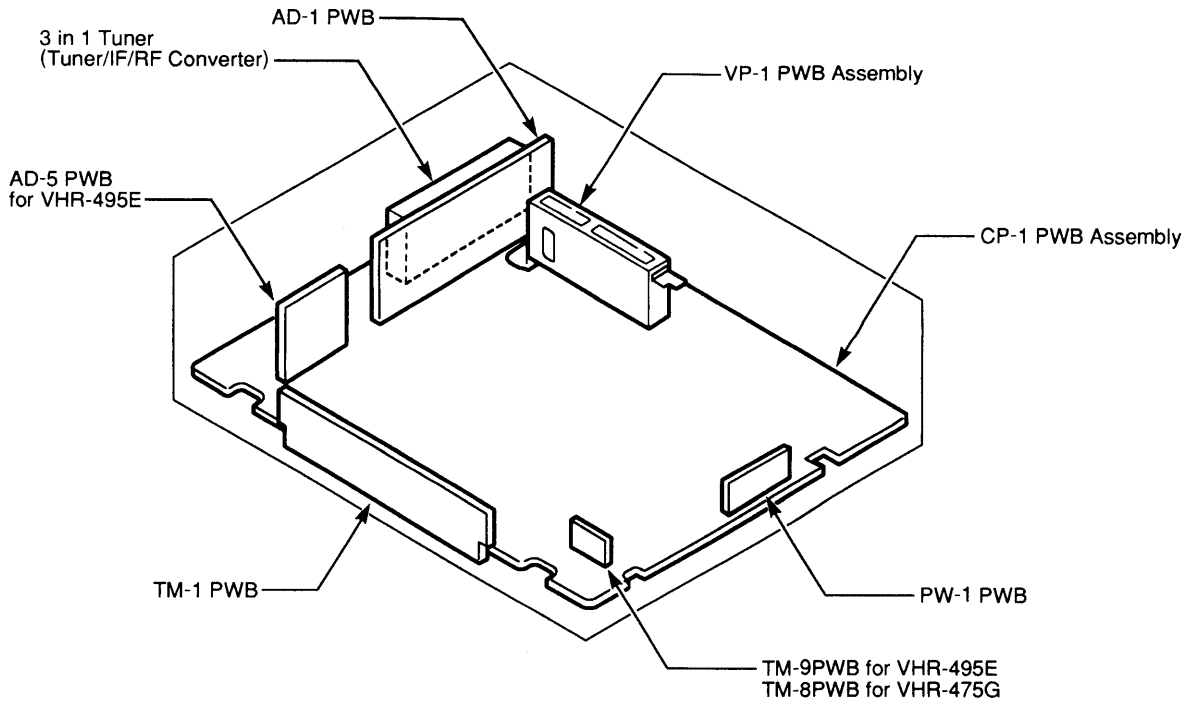


Fig. 1-1-5

1-4. MAIN CIRCUIT BOARD LOCATIONS

L-PP4/E



2. ELECTRICAL ADJUSTMENT

VCR PRESETTING

There are two types of models, one type is equipped with the OSD (on screen display) and the other is not.
For the one with the OSD function, select the required mode according to the following steps.
This VCR need three basic presetting by using the menus displayed on-screen. After all connection have been made, then follow steps 1 to 3 to preset the VCR.
The three presetting steps will be displayed in sequence on TV screen. The setting are entered with the remote control.

Turn on the VCR

1. Adjusting the TV receiver to the video channel: The AUTO SETUP screen will appear. When the video channel has been preset, press the OK button on the remote control.
2. Country selection: Using the numeric button, select the country of use.
3. Language selection: When the desired language has been select, press the MENU/ TV button at once.

When steps 1 to 3 have been finish, ready to operate the all operating mode.

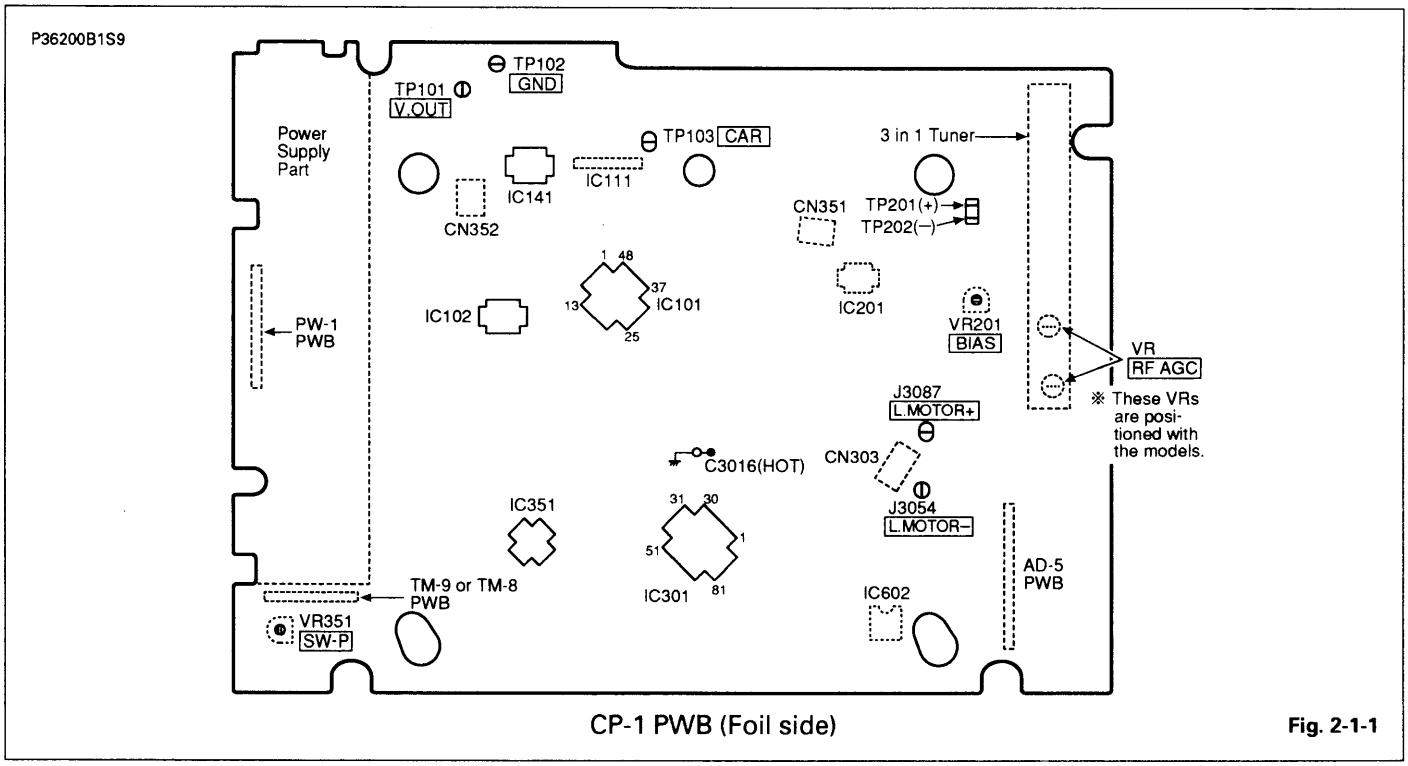
2-1. SERVO CIRCUIT ADJUSTMENT

- These adjustments should be done upon completion of the tape transport adjustments.
- If the tape transport adjustments (except the tilt adjustment) are done after these adjustments, follow the procedures again in section 2-1-3, "switching position adj."
- When a cassette tape is loaded, auto-tracking will be set immediately after starting the first playback, as this will deviate the tracking center set. Be sure to press the channel buttons (+) or (–) several times directly after starting playback to prevent auto-tracking from being set.

2-1-1. TEST EQUIPMENT AND STANDARDS REQUIRED

Oscilloscope	Vertical sensitivity Bandwidth	: 5 mV/DIV, external trigger : more than 10 MHz
Alignment Tape	VHJ-0009 or VHJ-0023	: SP mode, monoscope, 6 KHz
Blank Tape	VHS-type cassette tape	
Monitor TV		

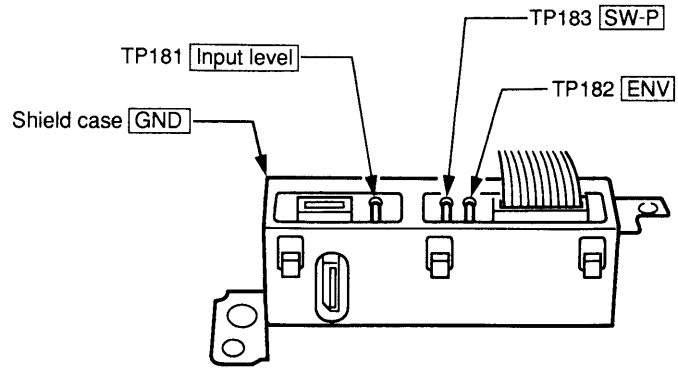
2-1-2. LOCATION OF ADJUSTMENT POINTS



CP-1 PWB (Foil side)

Fig. 2-1-1

P37400B2S5



VP-1 PWB Assembly

Fig. 2-1-2

Note:

- Self-recording means "Record any broadcasting or video signal and play back the just-recorded portion."

2-1-3. SWITCHING POSITION ADJ.

Measuring Point	Measuring Equipment	Adj. Condition
TP101 (VIDEO OUT) TP183 (SW-P)	Oscilloscope	PLAY mode Alignment tape (VHJ-0009 or VHJ-0023)

Adj. Location	Adj. Value
VR351 (SW-P)	6.5 H ± 0.5 H

1. Play back the alignment tape.
2. Set the tracking control position to the center by pressing CHANNEL buttons (+) and (–) simultaneously.
   Note: To set tracking to center accurately, press the two CHANNEL buttons together.
3. Adjust VR351 (SW-P) so that the width of "T" becomes 6.5 H ± 0.5 H as shown in Fig. 2-1-3.

WS-SWP

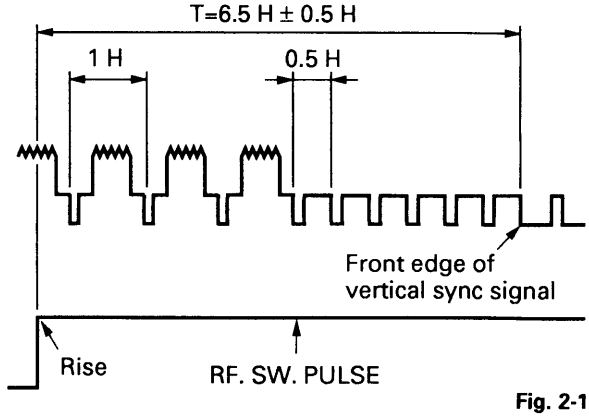


Fig. 2-1-3

2-1-4. SLOW TRAKCING ADJ.

Measuring Point	Measuring Equipment	Adj. Condition
Picture of monitor TV	Color bar generator or broadcasting monitor	Self-recording (SP mode) SLOW mode Blank tape
		Self-recording (LP mode) SLOW mode Blank tape

Adj. Location	Adj. Value
CHANNEL (+) button CHANNEL (–) button	—

1. Set the tracking control to the center position by pressing CHANNEL buttons (+) and (–) simultaneously.
2. Play back the self-recorded portion and set the VCR in the SLOW mode with the remote control unit.
3. Confirm that there is no noise on the slow playback display.
4. Press the CHANNEL button (+) about three times and check that noise dose not appear at the upper part of the display.
5. Adjust the tracking control to the center again.
6. Press the CHANNEL button (–) the same number of times as in the step 4 (about three times) and check that noise dose not appear at the lower part of the display.

Note:

- CHANNEL button also servers as TRACKING button.

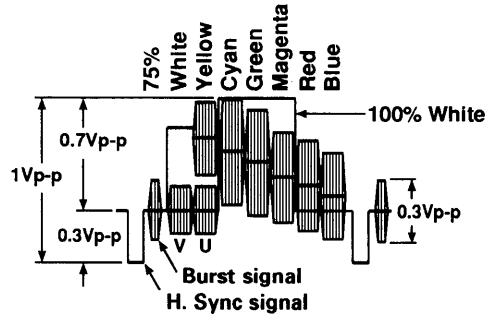
2-2. VIDEO CIRCUIT ADJUSTMENT

- In this model, video circuit adjustments are not performed. To check whether operations are normal, check the AGC level and PB-Y level using the following method.
- Use the adjustment relay jig to provide simple repairing of the VP-1 PWB assembly.

2-2-1. TEST EQUIPMENT AND STANDARDS REQUIRED

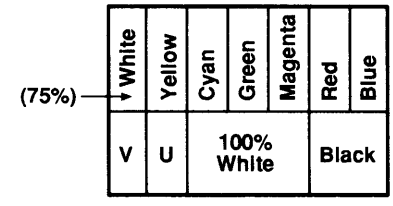
Color Bar Signal Generator	PAL Color bar signel with 100% white level (EBU color bar signel)
Oscilloscope	Vertical sensitivity : 5 mV/DIV, external trigger Bandwidth : more than 10 MHz
Oscilloscope Probe	Input capacity : less than 25 pF (10:1) less than 40 pF (1:1) Covering frequency : DC ~ 40 MHz (10:1) DC ~ 30 MHz (1:1)
Digital Voltmeter	DC range
Alignment Tape	VHJ-0008 or VHJ-0023 : SP mode, color bar, 1 kHz (Color bar signal waveform is described below. Refer to Fig. 2-2-1)
Adjustment Relay Jig	VHJ-0066 : 7-wire flat cable for VP-1 PWB assembly

ALIGNMENT TAPE COLOR BAR SIGNAL



Color bar signal waveform (VHJ-0008)

Fig. 2-2-1



Color bar pattern (VHJ-0008) on monitor TV

Fig. 2-2-2

ADJUSTMENT RELAY JIG

Connect the flat cable end from the cylinder assembly to the VP-1 PWB assembly using the relay jig to provide simple repairing or adjustment of the VP-1 PWB assembly, as shown in Fig. 2-2-3. Further, when adjusting the VP-1 PWB assembly, be sure to make contact an end of shield case with bracket of the VP-1 PWB assembly to maintain the shield effect. If the VP-1 PWB assembly does not contact, there is insufficient ground and no proper play back image can be obtained.

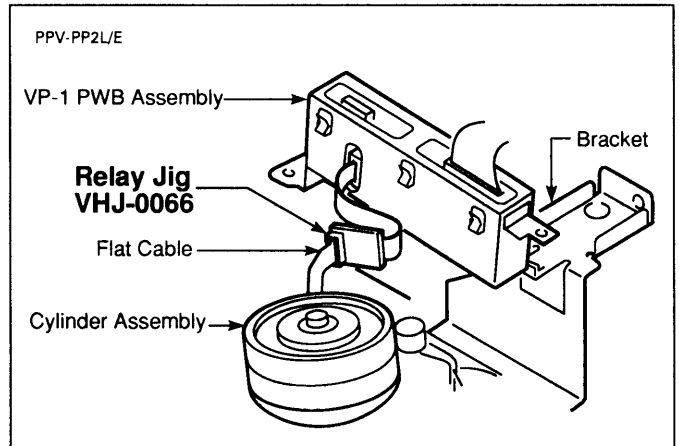
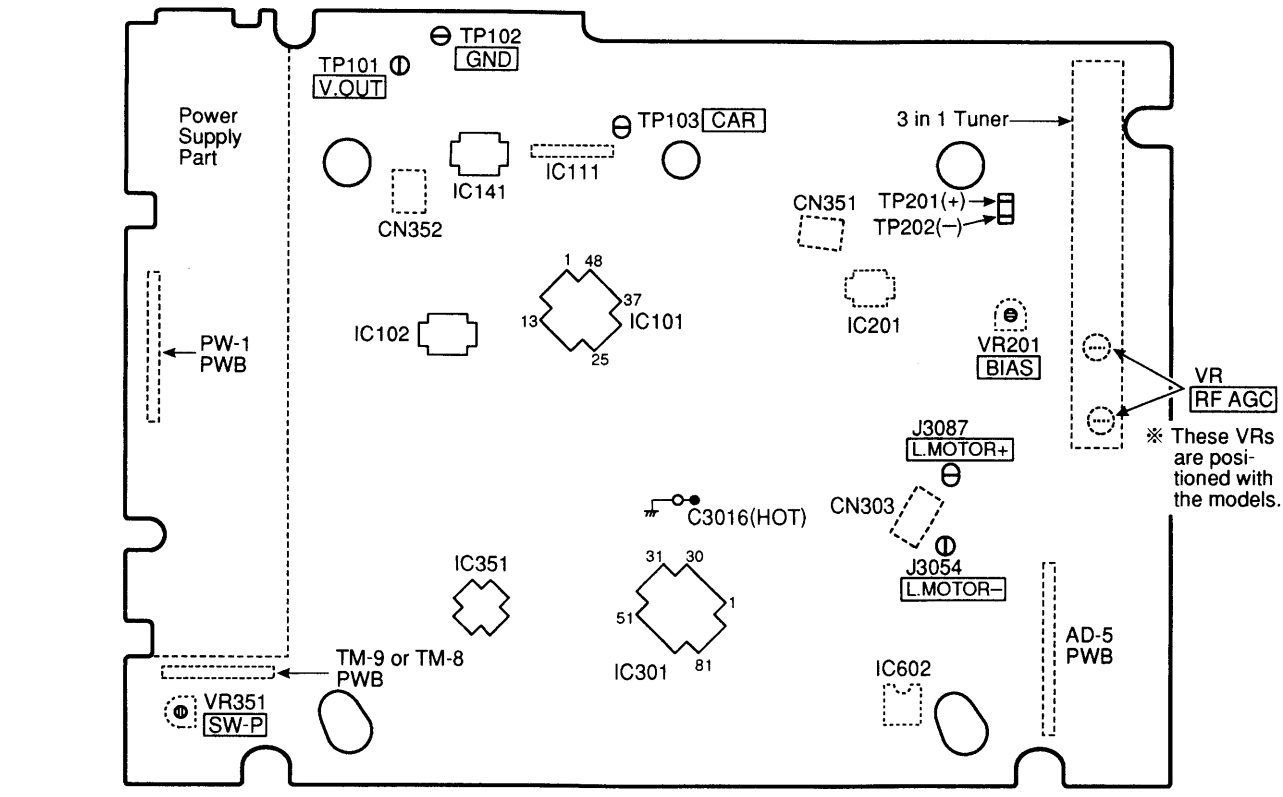


Fig. 2-2-3

2-2-2. LOCATION OF TEST POINTS



CP-1 PWB (Foil side)

Fig. 2-2-4

2-2-3. AGC LEVEL CHECK.

Measuring Point	Measuring Equipment	Adj Condition
IC101 pin 46	Color bar generator Oscilloscope (10:1 probe)	E-E mode

Adj. Location	Specified Value
—	0.5 Vp-p ± 0.05 Vp-p

1. Connect the color bar generator to the video input terminal.
2. Make sure that the AGC level is 0.5 Vp-p ± 0.05 Vp-p as shown in Fig. 2-2-5.

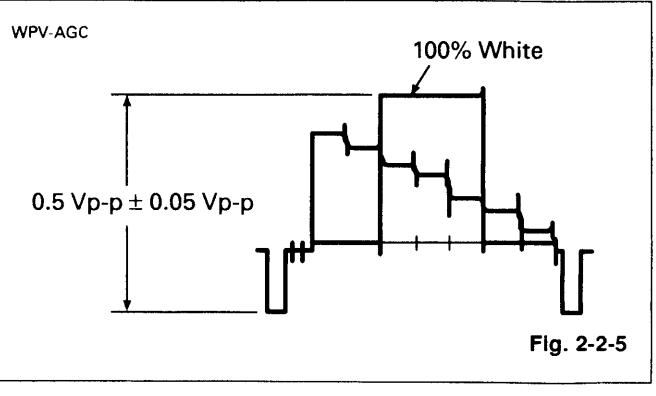


Fig. 2-2-5

2-2-4. PB-Y LEVEL CHECK.

Measuring Point	Measuring Equipment	Adj Condition
TP101 (VIDEO OUT)	Oscilloscope	PLAY mode Alignment tape (VHJ-0008 or VHJ-0023)

Adj. Location	Specified Value
—	1 Vp-p ± 0.1 Vp-p

1. Terminate the video output terminal with a 75Ω resistor.
2. Make sure that the video luminance signal level is 1 Vp-p ± 0.1 Vp-p. (Refer to Fig. 2-2-6)

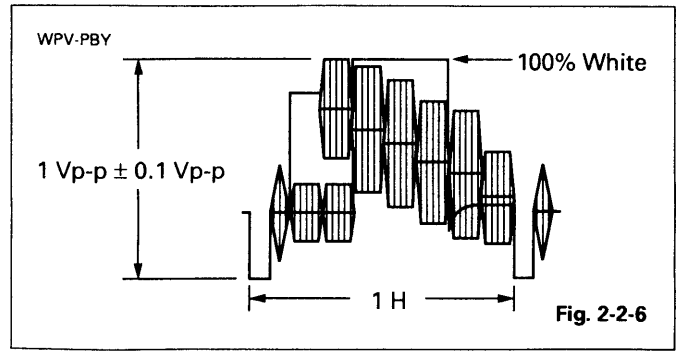


Fig. 2-2-6

2-3. AUDIO CIRCUIT ADJUSTMENT

- Before making these adjustments, be sure to make the adjustments described in the tape path adjustment, especially the ACE heads adjustments (refer to the separate volume "Mechanism Manual") so that the tape traveling between the supply side guide roller and loading guide post runs without fluttering or curling.
- Before making these adjustments (except the ACE heads adjustments), be sure to make the adjustments described in section 2-1, "Servo Circuit." and section 2-2, "Video Circuit."

2-3-1. TEST EQUIPMENT AND STANDARDS REQUIRED

Oscilloscope	Vertical sensitivity : 10 mV/DIV Bandwidth : more than 30 MHz
AC Voltmeter	Effective value indication Input frequency : 10 Hz ~ 20 kHz Input impedance : more than 1 MΩ Measurement level : 1 mV (full scale)
Blank Tape	VHS-type cassette tape

2-3-2. LOCATION OF ADJUSTMENT POINTS

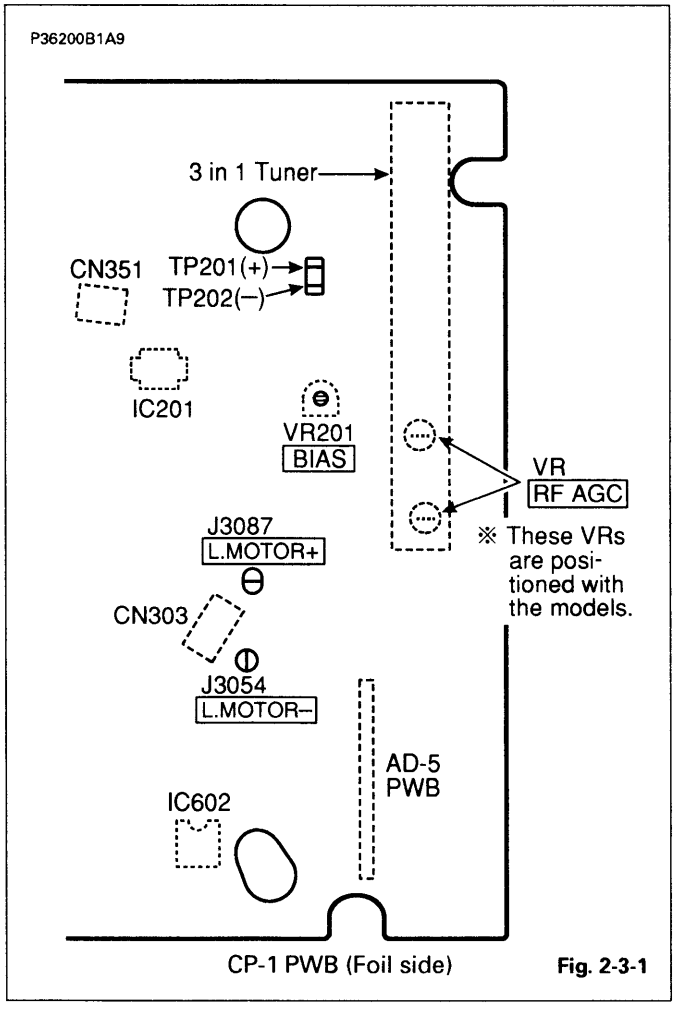


Fig. 2-3-1

2-3-3. BIAS LEVEL ADJ.

Measuring Point	Measuring Equipment	Adj Condition
TP201 (HOT) TP202 (COLD)	Oscilloscope AC voltmeter	REC mode Blank tape

Adj. Location	Adj. Value
VR201 (BIAS)	26 mVrms

1. Load the VCR with a blank tape and select the record mode without all incoming signal.
2. After confirming on the oscilloscope that a 70 kH ± 5 kHz sine wave is being output, adjust VR201 (BIAS) so that the AC voltmeter's reading is 26 mVrms.

2-4. IF CIRCUIT ADJUSTMENT

- In this model, the circuits of the TUNER, IF, and RF converter have been made into one. Therefore, should one circuit malfunction , the whole unit must be replaced.

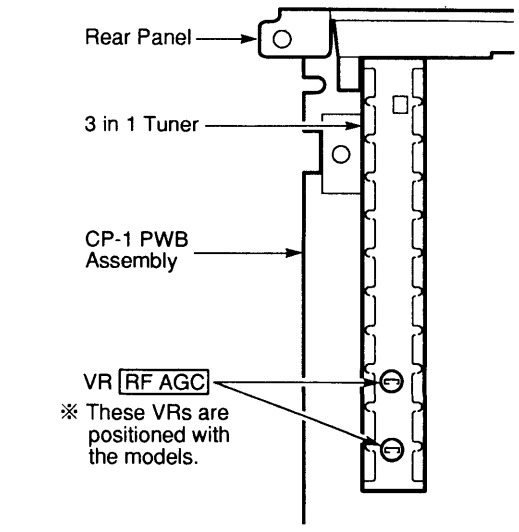
Note: The 3 in 1 tuner dose not need any adjustments, because precise adjustments were down befor shipment.

- The adjustments for the IF (RF AGC) circuit of the 3 in 1 tuner are described below.

2-4-1. TEST EQUIPMENT AND STANDARD REQUIRED

Monitor TV	

2-4-2. LOCATION OF ADJUSTMENT POINT



3 in 1 Tuner **Fig. 2-4-1**

2-4-3. RF AGC ADJ.

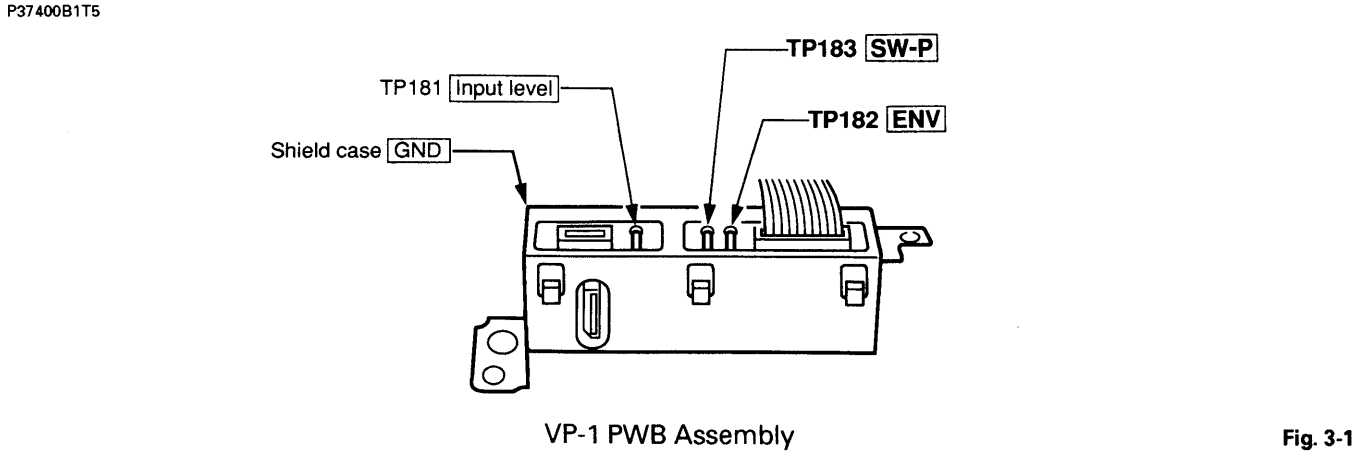
Measuring Point	Measuring Equipment	Adj. Condition
Picture of monitor TV	Monitor TV	E-E mode

Adj. Location	Adj. Value
VR (RF AGC) (on the 3 in 1 tuner)	S/N is best point

1. Connect the monitor TV to the VHF/UHF antenna output terminal.
2. Connect the VHF or UHF antenna to the VHF/UHF antenna input terminal.
3. Receive the middle electrical field (70 dBμ ~ 90 dBμ) of the VHF or UHF channel, and slowly turn the VR (RF AGC) from the point where snow-noise is present to the point where it just disappears from the monitor TV.
4. Confirm by monitor TV that there is no beat and saturation (S/N is best point) when receiving any TV channel.

3. TEST POINTS FOR TAPE PATH ADJUSTMENT

Test points TP182 (ENV) and TP183 (SW-P) for tape path adjustment are shown in figure below.
For adjustment, refer to the separate volume "Mechanism Manual (MM531433)."



VP-1 PWB Assembly **Fig. 3-1**

4. PARTS LIST

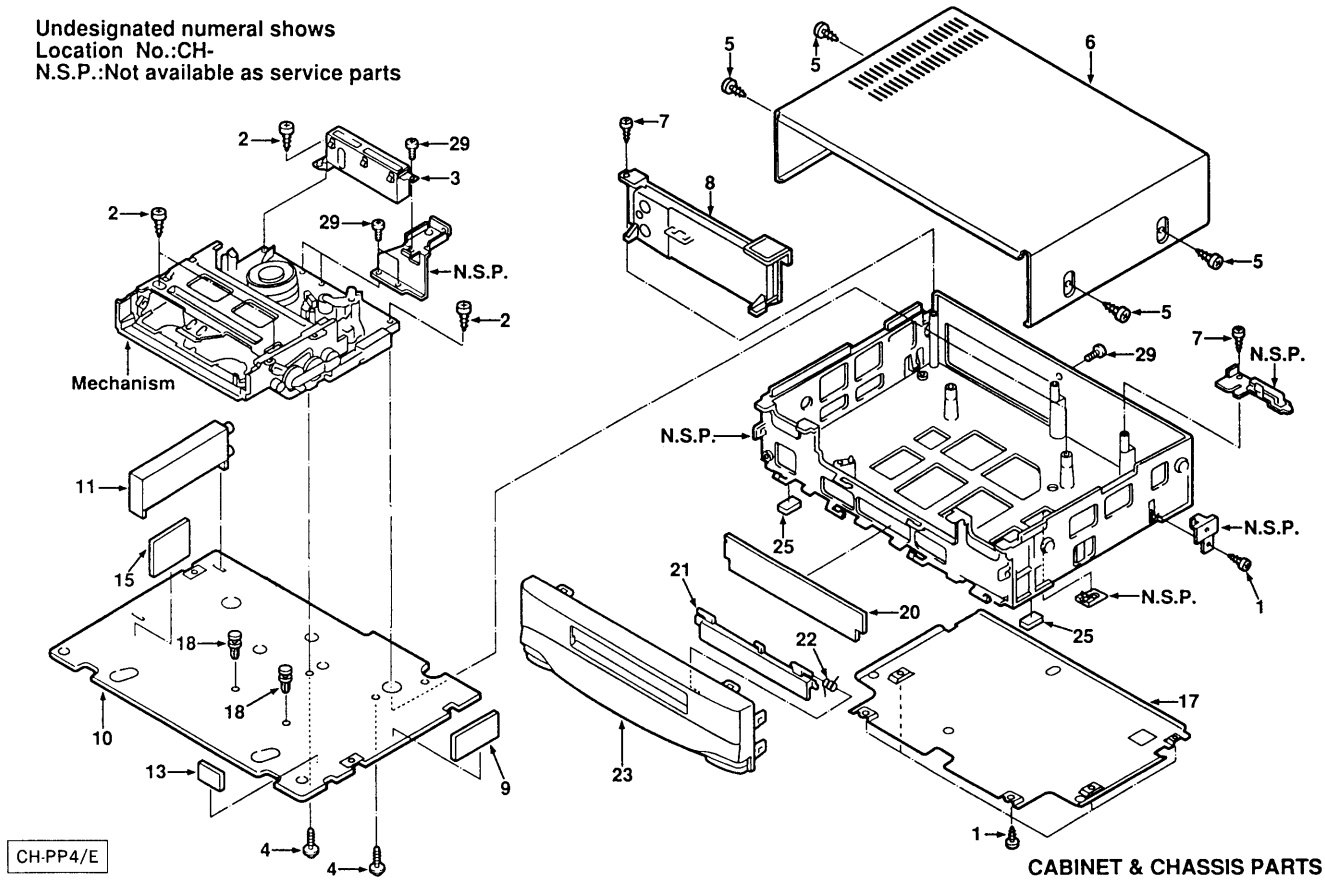
LOCATION		PARTS NO.	DESCRIPTION
ACCESSORIES			
		645 009 6693	REMOCON,INFRARED(WITH COVER BATTERY)(VHR-495E ONLY)
OR		645 010 9713	REMOCON,INFRARED(WITH COVER BATTERY)(VHR-475G ONLY)
		613 145 3227	COVER BATTERY(FOR REMOCON)
		613 160 9181	INSTRUCTION MANUAL(VHR-495E ONLY)
OR		613 163 9195	INSTRUCTION MANUAL(VHR-475G ONLY)
OR		613 164 7428	INSTRUCTION MANUAL(VHR-475G ONLY)
		613 077 4415	CABLE,ANT
OR		613 132 6125	CABLE,ANT
OR		645 003 1182	CABLE,ANT PAL
OR		645 003 3711	CABLE,ANT PAL
	⚠	613 136 6411	CORD,POWER(VHR-495E ONLY)
OR	⚠	613 140 7473	CORD,POWER(VHR-495E ONLY)
OR	⚠	613 095 0550	CORD,POWER(VHR-475G ONLY)
OR	⚠	613 133 2393	CORD,POWER(VHR-475G ONLY)
OR	⚠	645 002 6805	CORD,POWER(VHR-475G ONLY)
OR	⚠	645 003 3766	CORD,POWER(VHR-475G ONLY)

****

PACKING MATERIALS			
		613 161 0620	CARTON CASE(VHR-495E ONLY)
OR		613 163 9034	CARTON CASE(VHR-475G ONLY)
		613 160 9143	CUSHION,FRONT(VHR-495E ONLY)
OR		613 160 6098	CUSHION,FRONT(VHR-475G ONLY)
		613 160 9150	CUSHION,BACK(VHR-495E ONLY)
OR		613 160 6104	CUSHION,BACK(VHR-475G ONLY)
		613 099 1768	POLYE COVER,INNER-K(VHR-495E ONLY)
OR		613 139 8047	POLYE COVER,INNER-K(VHR-475G ONLY)

LOCATION	PARTS NO.	DESCRIPTION
CABINET & CHASSIS PARTS		
CH-1	411 137 0007	SCR L-TPG BIN 3X10
CH-2	411 021 7907	SCR S-TPG BIN 4X12
CH-3	613 160 6883	COMPL PWB,VP-1
CH-4	412 052 5108	SPECIAL SCREW-2.6X12
CH-5	412 028 9406	SPECIAL SCREW
CH-6	613 160 8931	COMPL,COVER TOP(VHR-495E ONLY)
OR	613 160 6036	COVER TOP(VHR-475G ONLY)
CH-7	411 021 3800	SCR S-TPG BIN 3X10
CH-8	613 160 6401	TERMINAL(VHR-495E ONLY)
OR	613 160 8726	TERMINAL(VHR-475G ONLY)
CH-9	613 160 3615	COMPL PWB PW-1
CH-10	613 160 7606	COMPL PWB,CP-1-A(VHR-495E ONLY)
OR	613 163 8228	COMPL PWB,CP-1-A(VHR-475G ONLY)
CH-11	645 007 1539	TUNER,RF/TU/IF(VHR-495E ONLY)
OR	645 007 1515	TUNER,RF/TU/IF(VHR-475G ONLY)
CH-13	613 158 5751	COMPL PCB,TM-9(VHR-495E ONLY)
OR	613 134 4730	COMPL PCB,TM-8(VHR-475G ONLY)
CH-15	613 160 7743	COMPL PWB,AD-5(VHR-495E ONLY)
CH-17	613 160 5091	COVER BOTTOM
CH-18	613 053 8048	FIXER
CH-20	613 160 4131	COMPL PWB,TM-1(VHR-495E ONLY)
OR	613 160 8030	COMPL PWB,TM-1(VHR-475G ONLY)
CH-21	613 160 9433	DOOR CASSETTE(VHR-495E ONLY)
OR	613 163 9010	DOOR CASSETTE(VHR-475G ONLY)
CH-22	613 153 0478	SPRING
CH-23	613 160 9358	ASSY,CABINET FRONT(VHR-495E ONLY)
OR	613 161 1405	ASSY,CABINET FRONT(VHR-475G ONLY)
CH-25	613 121 1001	STAND,FELT,FRONT
CH-29	411 001 1901	SCR S-TPG BIN 3X6

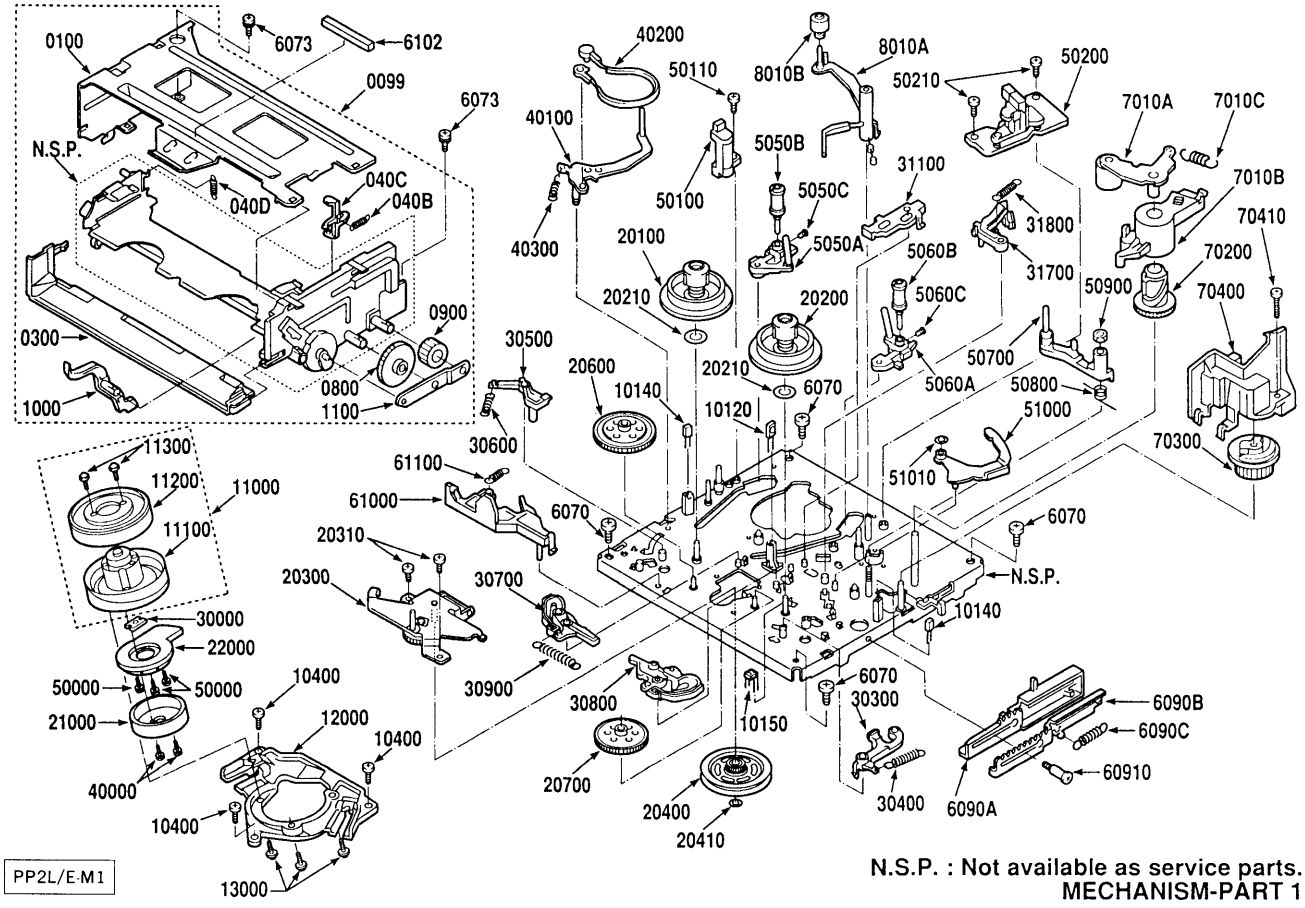
Undesignated numeral shows
Location No.:CH-
N.S.P.:Not available as service parts



CABINET & CHASSIS PARTS

MECHANISM PARTS

LOCATION	PARTS NO.	DESCRIPTION
MECHANISM PARTS 1		
11000	613 096 5059	COMPL,CYLINDER,2N4P-R
OR	613 096 2812	COMPL,CYLINDER,2N4P-R
11100	613 078 8566	ASSY,CYLINDER,LWR 4
OR	613 022 0325	ASSY,CYLINDER,LWR4
11200	613 096 5073	ASSY,CYLINDER,UPR 2N4P-R
OR	613 096 2829	ASSY,CYLINDER,UPR 2N4P-R
11300	411 038 1608	SCR PAN+W 3X8
12000	613 155 0759	MOUNTING,CYLINDER
OR	613 159 8980	MOUNTING,CYLINDER
13000	412 048 8601	SPECIAL SCREW-2.6X7
OR	411 047 4805	SCR PAN+FLG 2.6X6
21000	613 022 4019	ROTOR,MOTOR CYL
22000	645 008 4454	MOTOR,STATOR,CYL DC 2W
30000	613 097 2170	SPACER,MOTOR
40000	412 036 5001	SPECIAL SCREW 2.3X6
OR	412 036 0808	SPECIAL SCREW 2.3X6
50000	412 036 4905	SPECIAL SCREW 2.3X10
OR	412 036 0709	SPECIAL SCREW 2.3X10
0099	613 152 0578	COMPL,CASSETTE MECHANISM
0100	613 152 0738	STAND,L
0300	613 152 0660	FRAME,UNDER
040B	613 152 0417	SPRING,LID OPENER
040C	613 152 0707	LEVER,RELEASE
040D	613 152 0424	SPRING,TRAY LOCK
0800	613 152 2794	GEAR,LOCK
0900	613 152 2800	GEAR,PINION
1000	613 151 9480	LEVER,DOOR OPENER
1100	613 151 9299	HOLDER,GEAR
6070	411 021 7907	SCR S-TPG BIN 4X12
6073	412 048 8205	SPECIAL SCREW-2.6X6
6102	613 151 6618	PAD
10120	407 162 1102	LED LN59L,(D8003)
10140	407 162 8705	PHOTO DIODE PN263L-(NC)
10150	407 043 0101	PHOTO DIODE ON2170-R
10400	412 048 8106	SPECIAL SCREW-2.6X8
20100	613 160 5503	ASSY,REEL SUPPLY
20200	613 160 4193	ASSY,REEL TAKE UP
20210	412 021 5306	SPECIAL WASHER 3.1X6X0.3
OR	412 015 8900	SPECIAL WASHER 3.1X6X0.4
OR	412 015 8504	SPECIAL WASHER 3.1X6X0.5
20300	613 151 8889	COMPL,MOUNTING CLUTCH
20310	412 048 7505	SPECIAL SCREW-2.6X4
20400	613 151 9701	PULLEY,REEL
20410	412 045 4606	SPECIAL WASHER 2.4X6X0.25
20600	613 152 2749	GEAR,REEL S
20700	613 152 2756	GEAR,REEL T
30300	613 160 3356	ASSY,BRAKE SOFT T
30400	613 152 0295	SPRING,SOFT T
30500	613 151 9411	LEVER,SOFT S
30600	613 152 0318	SPRING,SOFT S
30700	613 160 6166	ASSY,BRAKE,S
30800	613 159 2193	ASSY,BRAKE T
30900	613 163 6996	SPRING,BRAKE
31100	613 152 0189	SLIDE,ACT BRAKE T
31700	613 151 8490	ASSY,BRAKE CAPSTAN
31800	613 152 0356	SPRING,BRAKE CAPSTAN
40100	613 151 8759	ASSY,LEVER,BT
40200	613 160 5282	ASSY,BRAKE,BAND
40300	613 152 0271	SPRING,BT
50100	645 008 9749	HEAD,ERASE FULL
50110	412 048 9707	SPECIAL SCREW-2.6X10
50200	645 008 5192	ASSY,HEAD,R/P ACE
50210	412 052 3500	SPECIAL SCREW-2.6X12
5050A	613 151 8858	ASSY,MOUNTING,INCLINE S



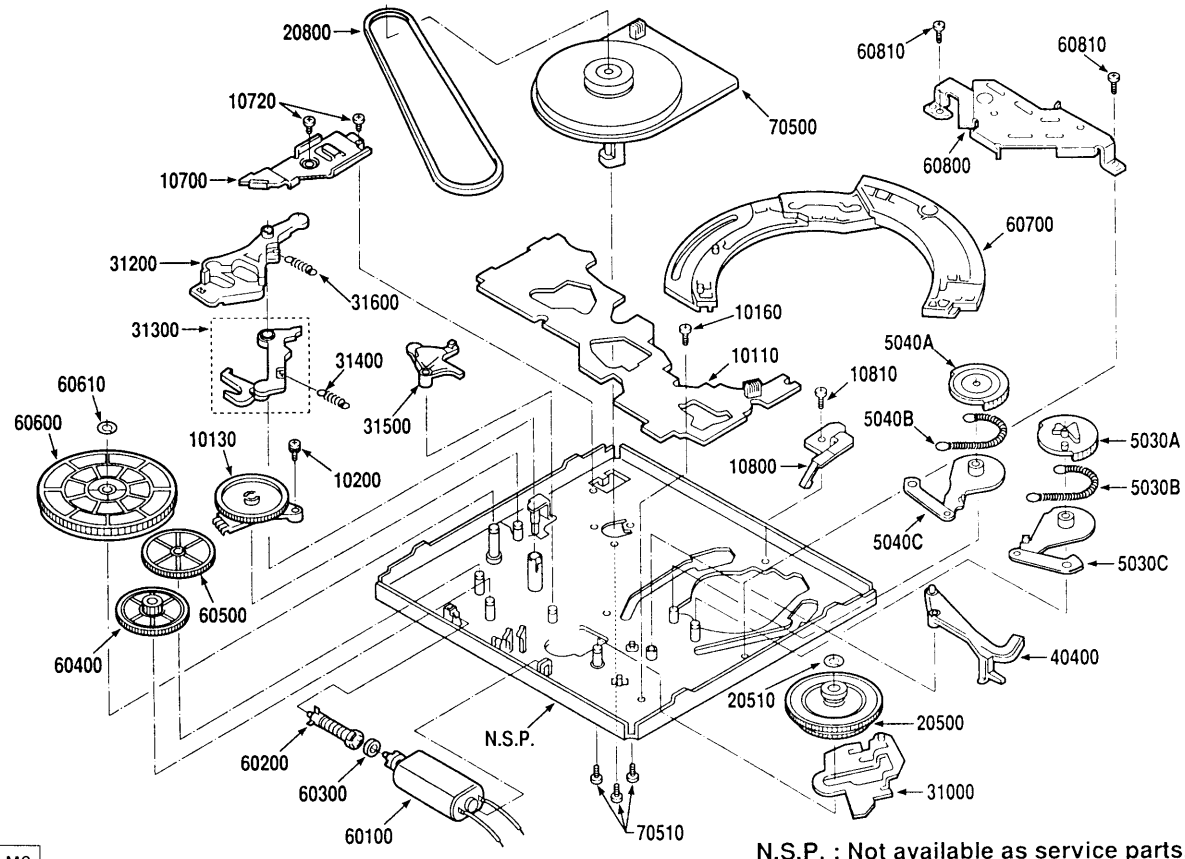
N.S.P. : Not available as service parts.
MECHANISM-PART 1

LOCATION	PARTS NO.	DESCRIPTION
5050B	613 022 0233	ASSY,GUIDE,ROLLER
5050C	412 048 4504	SPECIAL SCREW-2X3
5060A	613 151 8872	ASSY,MOUNTING INCLINE T
5060B	613 022 0233	ASSY,GUIDE,ROLLER
5060C	412 048 4504	SPECIAL SCREW-2X3
50700	613 164 4762	ASSY,LEVER,LOAD
50800	613 152 0387	SPRING,LEVER L GUIDE
50900	412 048 8908	SPECIAL NUT-3X3
51000	613 161 2365	ASSY,LEVER,ACT L GUIDE
51010	412 033 4106	WASHER SLIT 2.6X5X0.50
6090A	613 151 9152	GEAR,RACK FRONT
OR	613 160 4636	GEAR,RACK FRONT
6090B	613 151 9114	GEAR,RACK START
6090C	613 152 0226	SPRING,RACK FRONT
60910	412 050 2802	SPECIAL SCREW-2.6X6
61000	613 151 9398	LEVER,EP SW
61100	613 152 3692	SPRING,EP SW
7010A	613 151 8803	ASSY,LEVER,PINCH ROLLER
7010B	613 156 6033	MOUNTING,LIFT PINCH
7010C	613 152 0233	SPRING,PINCH ROLLER
70200	613 156 3841	CAM,LIFT PINCH
70300	613 152 0677	GEAR,CAM PINCH
70400	613 152 0714	MOUNTING,OPENER
70410	412 049 1106	SPECIAL SCREW-2.6X16
8010A	613 159 7273	LEVER,CLEANER
8010B	613 158 5829	ASSY,ROLLER,CLEANER

MECHANISM PARTS 2

10110	613 160 1574	COMPL PWB,MC-1
10130	645 007 1560	SWITCH,MODE 1P-1T
10160	412 048 7505	SPECIAL SCREW-2.6X4
10200	412 048 8304	SPECIAL SCREW-2.6X8

LOCATION	PARTS NO.	DESCRIPTION
10700	613 153 0836	MOUNTING,HARNESS
10720	412 048 9608	SPECIAL SCREW-2.6X3
10800	613 151 8582	ASSY,EARTH CYL
10810	412 048 8007	SPECIAL SCREW-2.6X6
20500	613 160 4186	ASSY,GEAR,FRICTION
20510	411 109 1605	WASHER Y 2.6X6X0.25
20800	613 151 9039	BELT,REEL
31000	613 152 0165	SLIDE,ACT BRAKE S
31200	613 159 0991	LEVER,CONTROL BRAKE
31300	613 159 0847	COMPL,LEVER,ACT BRAKE
31400	613 152 0332	SPRING,RETURN BRAKE
31500	613 151 9459	LEVER,CHANGE CLUTCH
31600	613 152 0349	SPRING,CHANGE CLUTCH
40400	613 153 7583	ASSY,LEVER SPRING BT
5030A	613 152 2763	GEAR,LOAD S
5030B	613 152 0370	SPRING,LOAD S
5030C	613 151 8766	ASSY,LEVER,LOAD S
5040A	613 152 2770	GEAR,LOAD T
5040B	613 152 0363	SPRING,LOAD T
5040C	613 151 8773	ASSY,LEVER,LOAD T
60100	645 003 4305	ASSY,MOTOR LOADING
60200	613 151 8599	COMPL,GEAR,WORM
60300	613 151 9107	DAMPER
60400	613 151 9138	GEAR,WHEEL 1
60500	613 160 3790	GEAR,WHEEL 2
60600	613 156 4008	CAM,MAIN
60610	412 051 6700	SPECIAL WASHER 3.6X0.5
60700	613 159 9017	SLIDE,CRESCENT
60800	613 159 8997	MOUNTING,CRESCENT
60810	412 048 8007	SPECIAL SCREW-2.6X6
70500	645 008 1880	MOTOR,CAPSTAN DC 3W
70510	412 048 7604	SPECIAL SCREW-2.6X6



PP2L/E-M2

N.S.P. : Not available as service parts.

MECHANISM-PART 2

ELECTRICAL PARTS

NOTE;

1. Materials of Capacitors and Resistors are abbreviated as follows;

Resistors

MT-FILM	Metallized Film Resistor
MT-GLAZE	Metallized Glaze Resistor
OXIDE-MT	Oxide Metallized Film Resistor

Capacitors

MT-POLYEST	Metallized Polyester Capacitor
MT-COMPO	Metallized Composite Capacitor
TA-SOLID	Tantalum Solid Capacitor
AL-SOLID	Aluminum Solid Capacitor
NP-ELECT	Non-Polarized Electrolytic Capacitor
OS-SOLID	Aluminum Solid Capacitors with Organic Semiconductive Electrolytic Capacitor
DL-ELECT	Double Layered Electrolytic Capacitor

2. Tolerance of Capacitor(10pF over) and Resistor are noted with follow symboles.
   F ····· ±1% G ····· ±2% J ····· ±5% K ····· ±10%
   M ····· ±20% N ····· ±30% Z ····· +80% ~ −20%
3. Capacitors
   U : uF P : pF
4. Inductors
   UH : uH MH : mH
5. N.S.P. : Not available as service parts.
6. The ceramic capacitors and resistors mounted on the PWB,may be two different types of parts,chip(leadless)type or discrete(with lead wire)type.Therefore,even though the location number is the same,you may encounter either chip or discrete parts on the PWB.

LOCATION	PARTS NO.	DESCRIPTION
COMPL PWB,CP-1-A		
COMPL.NO	613 160 7606	(VHR-495E)
COMPL.NO	613 163 8228	(VHR-475G)
(SEMICONDUCTORS)		
Q1001	405 057 6201	TR 2SC4038-Q
OR	405 057 6409	TR 2SC4038-R
OR	405 123 7002	TR 2SD1991A-Q
OR	405 123 7101	TR 2SD1991A-R
Q1002	405 011 8401	TR 2SC1740S-Q
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8500	TR 2SC1740S-R
OR	405 099 8508	TR 2SC4640S
Q1003	405 011 8401	TR 2SC1740S-Q
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8500	TR 2SC1740S-R
OR	405 099 8508	TR 2SC4640S
Q1004	405 018 2501	TR 2SC3399
OR	405 000 6104	TR DTC144ES
Q1005	405 011 8401	TR 2SC1740S-Q
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8500	TR 2SC1740S-R
OR	405 099 8508	TR 2SC4640S
Q1201	405 006 1806	TR 2SA933S-R
OR	405 099 8409	TR 2SA1782T-AC
Q1211	405 011 8401	TR 2SC1740S-Q
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8500	TR 2SC1740S-R
OR	405 099 8508	TR 2SC4640S
Q1221	405 057 6201	TR 2SC4038-Q
OR	405 057 6409	TR 2SC4038-R
OR	405 123 7002	TR 2SD1991A-Q
OR	405 123 7101	TR 2SD1991A-R
Q1222	405 064 0100	TR 2SA1561-Q
OR	405 064 0209	TR 2SA1561-R
OR	405 123 6708	TR 2SB1320A-Q
OR	405 123 6807	TR 2SB1320A-R
Q1401	405 006 1707	TR 2SA933S-Q
OR	405 093 0508	TR KSA1175-Y
OR	405 006 1806	TR 2SA933S-R
OR	405 099 8201	TR 2SA1782S
OR	405 099 8409	TR 2SA1782T-AC
Q2001	405 018 0002	TR 2SC3331-S
Q2001	405 018 0101	TR 2SC3331-T
OR	405 018 0200	TR 2SC3331-U
Q2002	405 063 9708	TR DTC144EL
Q2003	405 063 9302	TR DTA124EL
OR	405 124 2808	TR UN6112
Q2081	405 018 2501	TR 2SC3399(VHR-495E ONLY)
OR	405 000 6104	TR DTC144ES(VHR-495E ONLY)
Q2082	405 003 7603	TR 2SA1345(VHR-495E ONLY)
OR	405 000 2205	TR DTA144ES(VHR-495E ONLY)
Q3503	405 063 9708	TR DTC144EL
Q3504	405 063 9708	TR DTC144EL
Q3551	405 057 6201	TR 2SC4038-Q
OR	405 057 6409	TR 2SC4038-R
OR	405 123 7002	TR 2SD1991A-Q
OR	405 123 7101	TR 2SD1991A-R
Q3552	405 057 6201	TR 2SC4038-Q
OR	405 057 6409	TR 2SC4038-R
OR	405 123 7002	TR 2SD1991A-Q
OR	405 123 7101	TR 2SD1991A-R
Q3553	405 057 6201	TR 2SC4038-Q
OR	405 057 6409	TR 2SC4038-R
OR	405 123 7002	TR 2SD1991A-Q
OR	405 123 7101	TR 2SD1991A-R
Q5001	405 094 6905	TR 2SK1460
OR	405 126 0208	TR 2SK1460LS
Q5002	405 013 7006	TR 2SC2274-F
OR	405 013 7303	TR 2SC2274K-F
Q5003	405 006 6702	TR 2SA984-F
OR	405 006 7204	TR 2SA984K-F
Q5004	405 013 7006	TR 2SC2274-F
OR	405 013 7303	TR 2SC2274K-F
Q5101	405 089 2103	TR 2SC4483-S
OR	405 089 2202	TR 2SC4483-T
Q5102	405 013 6801	TR 2SC2274-E
OR	405 013 7006	TR 2SC2274-F
OR	405 013 7303	TR 2SC2274K-F
OR	405 013 7204	TR 2SC2274K-E
Q5103	405 013 6801	TR 2SC2274-E
OR	405 013 7006	TR 2SC2274-F
OR	405 013 7303	TR 2SC2274K-F
OR	405 013 7204	TR 2SC2274K-E

LOCATION	PARTS NO.	DESCRIPTION
Q6001	405 073 6407	TR 2SK772-E(VHR-495E ONLY)
OR	405 073 6506	TR 2SK772-F(VHR-495E ONLY)
OR	405 026 9004	TR 2SK222-D(VHR-495E ONLY)
OR	405 026 9103	TR 2SK222-E(VHR-495E ONLY)
OR	405 114 7806	TR 2SK1104-P(VHR-495E ONLY)
OR	405 114 7905	TR 2SK1104-Q(VHR-495E ONLY)
OR	405 114 8001	TR 2SK1104-R(VHR-495E ONLY)
Q6002	405 018 2501	TR 2SC3399(VHR-495E ONLY)
OR	405 000 6104	TR DTC144ES(VHR-495E ONLY)
Q6901	405 011 8401	TR 2SC1740S-Q
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8500	TR 2SC1740S-R
OR	405 099 8508	TR 2SC4640S
Q6902	405 006 1707	TR 2SA933S-Q
OR	405 093 0508	TR KSA1175-Y
OR	405 006 1806	TR 2SA933S-R
OR	405 099 8201	TR 2SA1782S
OR	405 099 8409	TR 2SA1782T-AC
Q6903	405 011 8401	TR 2SC1740S-Q
OR	405 093 0607	TR KSC2785-Y
OR	405 011 8500	TR 2SC1740S-R
OR	405 099 8508	TR 2SC4640S
Q6904	405 063 9708	TR DTC144EL
Q6921	405 084 8209	TR 2SC2960-F-SPA(VHR-495E ONLY)
OR	405 084 8308	TR 2SC2960-G-SPA(VHR-495E ONLY)
(INTEGRATED CIRCUITS)		
IC102	409 328 6907	IC LC89970M
IC111	409 120 3401	IC LA7221
IC141	410 225 2701	IC LC74783M-9083-TRM
OR	410 228 1404	IC LC74783M-9095-TRM
IC201	409 262 2409	IC LA7285M
OR	409 340 3403	IC LA7283M
IC301	410 230 9306	IC LC866744A-5761(VHR-495E ONLY)
OR	410 230 5209	IC LC866744A-5758(VHR-475G ONLY)
IC302	409 314 2005	IC LB1643
IC303	409 313 0903	IC MN1381-L
OR	409 243 4101	IC MN1380-L
IC351	409 323 3109	IC BU2896K
IC512	409 225 2309	IC PQ12RF11
IC602	410 177 3603	IC AT24C02-10PC(VHR-495E ONLY)
OR	410 172 6807	IC X24C02P-C7189(VHR-495E ONLY)
OR	409 348 6802	IC XL24C02P(VHR-495E ONLY)
OR	410 189 5701	IC 24LC02B/P(VHR-495E ONLY)
OR	410 177 3702	IC AT24C04-10PC(VHR-475G ONLY)
OR	410 172 6906	IC X24C04P-C7346(VHR-475G ONLY)
OR	409 348 6901	IC XL24C04P(VHR-475G ONLY)
OR	410 189 5800	IC 24LC04B/P(VHR-475G ONLY)
IC692	409 026 8203	IC L5631(VHR-495E ONLY)
OR	409 057 5103	IC UPC574J(VHR-495E ONLY)
(DIODES)		
D1101	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D1102	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D1201	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D1202	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D1221	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D3001	407 012 4406	DIODE 1SS133

LOCATION	PARTS NO.	DESCRIPTION
D3001	407 007 9904	DIODE GMA01
D3102	407 012 4406	DIODE 1SS133(VHR-495E ONLY)
OR	407 007 9904	DIODE GMA01(VHR-495E ONLY)
D3113	407 012 4406	DIODE 1SS133
OR	407 007 9904	DIODE GMA01
D3116	407 012 4406	DIODE 1SS133
OR	407 007 9904	DIODE GMA01
D3121	407 012 4406	DIODE 1SS133(VHR-475G ONLY)
OR	407 007 9904	DIODE GMA01(VHR-475G ONLY)
D3122	407 012 4406	DIODE 1SS133(VHR-495E ONLY)
OR	407 007 9904	DIODE GMA01(VHR-495E ONLY)
D3123	407 012 4406	DIODE 1SS133(VHR-495E ONLY)
OR	407 007 9904	DIODE GMA01(VHR-495E ONLY)
D3502	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D3554	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D5001	407 134 8900	DIODE DBC10G
D5003	407 078 2705	DIODE 1SS244
D5010	407 091 6704	DIODE AP01C
D5101	407 169 5707	DIODE RL2Z-LF-C4
OR	407 160 9308	DIODE ERB93-02L3
D5102	407 169 5707	DIODE RL2Z-LF-C4
OR	407 160 9308	DIODE ERB93-02L3
D5103	407 078 2705	DIODE 1SS244
D5104	407 078 2705	DIODE 1SS244
D5105	407 100 6909	DIODE AG01
OR	407 091 6902	DIODE ERA38-04
D5106	407 063 8903	ZENER DIODE MTZJ5.6C
D5107	407 063 8903	ZENER DIODE MTZJ5.6C
D5108	407 063 8903	ZENER DIODE MTZJ5.6C
D5109	407 099 6706	ZENER DIODE MTZJ13A
D5110	407 004 9709	DIODE DSK10C
OR	407 005 8701	DIODE ERA15-02
D6901	407 012 4406	DIODE 1SS133
OR	407 007 9904	DIODE GMA01
D6902	407 012 4406	DIODE 1SS133
OR	407 007 9904	DIODE GMA01
D6903	407 012 4406	DIODE 1SS133
OR	407 007 9904	DIODE GMA01
D6910	407 100 0006	ZENER DIODE MTZJ33C(VHR-475G ONLY)
(CRYSTAL DEVICES)		
X1001	645 000 6012	OSC,CRYSTAL 4.433619MHZ
OR	645 000 6029	OSC,CRYSTAL 4.433619MHZ
OR	645 002 4436	OSC,CRYSTAL 4.433619MHZ
X1401	613 002 8709	CRYSTAL 17.734475MHZ
OR	613 127 1555	OSC,CRYSTAL 17.734475MHZ
X3001	645 007 8460	OSC,CERAMIC 8.500MHZ
OR	645 008 8360	OSC,CERAMIC 8.500MHZ
X3002	645 004 1938	OSC,CRYSTAL 32.768KHZ
OR	613 109 0972	OSC,CRYSTAL 32KHZ
(VARIABLE RESISTORS)		
VR201	645 001 8787	VR,SEMI,100K N
OR	645 003 5548	VR,SEMI,100K N
VR351	645 003 5166	VR,SEMI,220K N
OR	645 003 5593	VR,SEMI,220K N
(INDUCTORS)		
L1001	645 003 7917	INDUCTOR,100U J
OR	645 001 4574	INDUCTOR 100U J
L1002	645 001 4574	INDUCTOR 100U J
OR	645 003 7917	INDUCTOR,100U J

LOCATION	PARTS NO.	DESCRIPTION
L1003	645 003 7955	INDUCTOR,15U J
OR	645 002 1428	INDUCTOR 15U J
L1005	645 001 5472	INDUCTOR 33U J
OR	645 003 8105	INDUCTOR,33U J
L1201	645 008 7400	CORE,BEAD
L2002	645 009 0417	INDUCTOR,10.0M J
L2051	613 130 3539	FERRITE CORE
OR	645 008 7936	CORE
L3001	645 000 4070	CORE,BEAD
OR	645 008 7394	CORE,BEAD
L3003	645 000 4070	CORE,BEAD
OR	645 008 7394	CORE,BEAD
L5001 ⚠	645 002 1886	LINE FILTER
L5002 ⚠	645 003 3858	LINE FILTER
L5010	645 006 3602	INDUCTOR,1.1UH
L5101	645 006 3602	INDUCTOR,1.1UH
L5102	645 006 3602	INDUCTOR,1.1UH
L5103	645 009 3791	CORE,BEAD
L6008	645 003 7900	INDUCTOR,10U K(VHR-495E ONLY)
OR	645 001 4550	INDUCTOR 10U K(VHR-495E ONLY)
L6009	645 003 6910	INDUCTOR,10U J
L6602	645 003 7900	INDUCTOR,10U K
OR	645 001 4550	INDUCTOR 10U K
L6604	645 005 3856	INDUCTOR,1U M
OR	645 006 3886	INDUCTOR,1U K
(TRANSFORMERS)		
T2001	613 098 6023	TRANS,OSC 70KHZ
OR	645 004 7480	TRANS,OSC,70KHZ
OR	621 019 9596	70KHZ OSC TRANS
T5001 ⚠	645 009 0011	TRANS,POWER,PULSE
T6901	613 109 0958	TRANS,IF
OR	613 109 0965	TRANS,IF
OR	645 002 9356	TRANS,IF 15.625KHZ
(CAPACITORS)		
C1001	403 142 9205	CERAMIC 0.1U Z 25V
C1002	403 120 9609	CERAMIC 0.047U J 16V
C1003	403 069 5601	CERAMIC 0.01U K 50V
C1004	403 142 9205	CERAMIC 0.1U Z 25V
C1005	403 069 5601	CERAMIC 0.01U K 50V
C1006	403 069 5601	CERAMIC 0.01U K 50V
C1007	403 024 7206	CERAMIC 390P J 50V
C1008	403 120 9005	CERAMIC 0.022U J 16V
C1010	403 120 9609	CERAMIC 0.047U J 16V
C1011	403 069 5601	CERAMIC 0.01U K 50V
C1012	403 014 9302	CERAMIC 180P J 50V
C1013	403 120 9609	CERAMIC 0.047U J 16V
C1014	403 069 5601	CERAMIC 0.01U K 50V
C1015	403 069 5601	CERAMIC 0.01U K 50V
C1016	403 069 5601	CERAMIC 0.01U K 50V
C1017	403 069 5601	CERAMIC 0.01U K 50V
C1018	403 069 5601	CERAMIC 0.01U K 50V
C1019	403 069 5601	CERAMIC 0.01U K 50V
C1020	403 069 5601	CERAMIC 0.01U K 50V
C1021	403 069 5601	CERAMIC 0.01U K 50V
C1022	403 009 5807	CERAMIC 100P J 50V
C1023	403 189 2405	ELECT 10U M 16V
C1024	403 163 7907	ELECT 47U M 6.3V
C1025	403 109 6308	ELECT 1U M 50V
C1026	403 107 9905	ELECT 10U M 16V
C1027	403 191 8709	ELECT 1U M 50V
C1028	403 163 7907	ELECT 47U M 6.3V
C1029	403 163 7907	ELECT 47U M 6.3V
C1030	403 191 8709	ELECT 1U M 50V
C1031	403 191 8709	ELECT 1U M 50V
C1032	403 191 8709	ELECT 1U M 50V
C1034	403 008 7505	CERAMIC 10P D 50V
C1036	403 142 9205	CERAMIC 0.1U Z 25V
C1037	403 031 2201	CERAMIC 680P J 50V
C1038	403 018 0602	CERAMIC 22P J 50V
C1039	403 030 7009	CERAMIC 68P J 50V
C1040	403 030 7009	CERAMIC 68P J 50V
C1042	403 068 5107	CERAMIC 0.047U Z 25V
C1043	403 069 5601	CERAMIC 0.01U K 50V
C1045	403 023 4503	CERAMIC 330P J 50V
C1052	403 068 5107	CERAMIC 0.047U Z 25V
C1054	403 109 6308	ELECT 1U M 50V
C1055	403 135 4002	ELECT 47U M 6.3V
C1056	403 109 6308	ELECT 1U M 50V
C1057	403 150 6500	ELECT 22U M 16V
C1058	403 189 2405	ELECT 10U M 16V
C1059	403 191 8709	ELECT 1U M 50V
C1060	403 018 0602	CERAMIC 22P J 50V
C1061	403 069 5601	CERAMIC 0.01U K 50V
C1065	403 033 4609	CERAMIC 82P J 50V
C1101	403 130 2904	ELECT 0.47U M 50V
C1102	403 107 9905	ELECT 10U M 16V
C1103	403 068 5107	CERAMIC 0.047U Z 25V
C1201	403 135 4101	ELECT 470U M 6.3V
C1202	403 142 9205	CERAMIC 0.1U Z 25V
C1211	403 022 8304	CERAMIC 33P J 50V
C1401	403 012 6808	CERAMIC 15P J 50V
C1402	403 012 6808	CERAMIC 15P J 50V
C1403	403 191 8709	ELECT 1U M 50V
C1404	403 069 5601	CERAMIC 0.01U K 50V
C1405	403 135 4002	ELECT 47U M 6.3V
C2002	403 010 1102	CERAMIC 1000P J 50V
C2004	403 163 7907	ELECT 47U M 6.3V
C2005	403 071 3503	CERAMIC 0.018U K 50V
C2009	403 121 2401	ELECT 22U M 16V
C2010	403 150 6500	ELECT 22U M 16V
C2013	403 002 8201	CERAMIC 0.015U J 25V
C2016	403 167 7002	ELECT 4.7U M 50V
C2017	403 107 9905	ELECT 10U M 16V
C2019	403 134 9602	ELECT 47U M 16V
C2020	403 071 6504	CERAMIC 220P K 50V
C2021	403 082 4209	POLYPRO 6800P J 100V
C2022	403 069 5601	CERAMIC 0.01U K 50V
C2024	403 069 5601	CERAMIC 0.01U K 50V
C2031	403 142 9205	CERAMIC 0.1U Z 25V
C2032	403 142 9205	CERAMIC 0.1U Z 25V
C2051	403 011 4904	CERAMIC 120P J 50V
C2071	403 010 1102	CERAMIC 1000P J 50V
C2072	403 191 8808	ELECT 2.2U M 50V
C2073	403 003 2406	CERAMIC 0.022U J 25V
C2081	403 142 9205	CERAMIC 0.1U Z 25V (VHR-495E ONLY)
C2091	403 142 9205	CERAMIC 0.1U Z 25V
C2092	403 071 8102	CERAMIC 2200P K 50V
C2107	403 010 1102	CERAMIC 1000P J 50V
C2109	403 075 0706	CERAMIC 6800P K 50V
C3001	403 016 8907	CERAMIC 20P J 50V
C3002	403 017 7404	CERAMIC 22P J 50V
C3004	403 001 1906	CERAMIC 0.01U K 16V
C3005	403 001 1906	CERAMIC 0.01U K 16V
C3008	403 150 6500	ELECT 22U M 16V
C3009	403 069 5601	CERAMIC 0.01U K 50V
C3010	403 139 2905	ELECT 2.2U M 50V
C3011	403 142 9205	CERAMIC 0.1U Z 25V

LOCATION	PARTS NO.	DESCRIPTION
C3012	403 001 1906	CERAMIC 0.01U M 16V
C3014	403 206 9004	ELECT 1000U M 6.3V
C3016	403 069 5601	CERAMIC 0.01U K 50V
C3017	403 069 1702	CERAMIC 1000P K 50V (VHR-495E ONLY)
C3018	403 139 1007	ELECT 47U M 6.3V
C3020	403 069 5601	CERAMIC 0.01U K 50V (VHR-495E ONLY)
C3021	403 026 2902	CERAMIC 47P J 50V
C3022	403 294 6008	DL-ELECT 0.1F Z 5.5V
C3034	403 069 5601	CERAMIC 0.01U K 50V
C3096	403 121 9509	CERAMIC 0.1U Z 50V
C3501	403 070 9803	CERAMIC 0.015U K 50V
C3502	403 075 0706	CERAMIC 6800P K 50V
C3503	403 070 9803	CERAMIC 0.015U K 50V
C3504	403 228 8207	ELECT 22U M 16V
C3505	403 228 8207	ELECT 22U M 16V
C3506	403 075 0706	CERAMIC 6800P K 50V
C3507	403 228 8207	ELECT 22U M 16V
C3508	403 228 8207	ELECT 22U M 16V
C3509	403 163 7907	ELECT 47U M 6.3V
C3511	403 071 6504	CERAMIC 220P K 50V
C3512	403 061 3407	POLYESTER 0.039U J 50V
C3513	403 119 6701	CERAMIC 0.068U K 16V
C3514	403 175 1009	MT-POLYEST 0.15U J 50V
C3515	403 059 6205	POLYESTER 0.022U K 50V
C3516	403 071 8102	CERAMIC 2200P K 50V
C3517	403 070 8806	CERAMIC 1500P K 50V
C3522	403 069 1702	CERAMIC 1000P K 50V
C3523	403 191 8709	ELECT 1U M 50V
C3524	403 069 5601	CERAMIC 0.01U K 50V
C3525	403 130 2904	ELECT 0.47U M 50V
C3526	403 063 7205	POLYESTER 0.082U J 50V
C3530	403 135 4002	ELECT 47U M 6.3V
C3536	403 193 7601	ELECT 220U M 6.3V
C3540	403 009 5708	CERAMIC 100P J 50V
C3551	403 175 0903	MT-POLYEST 0.12U J 50V
C3552	403 028 4201	CERAMIC 56P J 50V
C3553	403 191 8709	ELECT 1U M 50V
C3554	403 013 3103	CERAMIC 150P J 50V
C3556	403 069 1702	CERAMIC 1000P K 50V
C3558	403 149 0700	ELECT 33U M 16V
C3570	403 142 9205	CERAMIC 0.1U Z 25V
C3571	403 142 9205	CERAMIC 0.1U Z 25V
C5001 ⚠	404 060 1708	MT-POLYEST 0.068U M 250V
C5002 ⚠	404 060 1708	MT-POLYEST 0.068U M 250V
C5005 ⚠	404 032 8704	CERAMIC 2200P M 400V
C5007 ⚠	404 032 8704	CERAMIC 2200P M 400V
C5010	403 249 0204	ELECT 47U M 400V
C5011	403 057 3107	POLYESTER 0.1U K 50V
C5012	403 026 7501	CERAMIC 470P J 50V
C5015	403 076 0507	CERAMIC 2200P K 500V
C5022	403 076 2402	CERAMIC 3300P K 500V
C5025	403 255 8409	CERAMIC 39P J 1K
C5101	403 243 8206	ELECT 2200U M 6.3V
C5102	403 147 9200	ELECT 1000U M 6.3V
C5103	403 207 5005	ELECT 470U M 16V
C5104	403 218 3106	ELECT 1000U M 16V
C5105	403 228 8900	ELECT 100U M 50V
C5106	403 228 9600	ELECT 47U M 35V
C5107	403 243 7803	ELECT 220U M 6.3V
C5111	403 134 6007	ELECT 330U M 16V
C5112	403 107 9905	ELECT 10U M 16V
C5113	403 135 7805	ELECT 3.3U M 50V
C5114	403 107 9905	ELECT 10U M 16V
C5115	403 135 7805	ELECT 3.3U M 50V
C5116	403 189 2405	ELECT 10U M 16V

LOCATION	PARTS NO.	DESCRIPTION
C6004	403 168 6103	MT-POLYEST 0.1U J 50V (VHR-495E ONLY)
C6005	403 142 9205	CERAMIC 0.1U Z 25V (VHR-495E ONLY)
C6006	403 068 5107	CERAMIC 0.047U Z 25V (VHR-495E ONLY)
C6007	403 107 9905	ELECT 10U M 16V
C6008	403 068 3608	CERAMIC 0.033U Z 25V
C6009	403 134 9602	ELECT 47U M 16V
C6010	403 071 8102	CERAMIC 2200P K 50V (VHR-495E ONLY)
C6013	403 033 4609	CERAMIC 82P J 50V (VHR-475G ONLY)
C6018	403 121 9509	CERAMIC 0.1U Z 50V
C6091	403 033 4609	CERAMIC 82P J 50V (VHR-475G ONLY)
C6601	403 107 9905	ELECT 10U M 16V
C6602	403 107 9905	ELECT 10U M 16V
C6902	403 068 5107	CERAMIC 0.047U Z 25V
C6904	403 107 9905	ELECT 10U M 16V
C6906	403 142 8802	CERAMIC 0.022U Z 25V
C6907	403 108 0000	ELECT 0.22U M 50V
C6908	403 142 9205	CERAMIC 0.1U Z 25V
C6909	403 125 5606	ELECT 100U M 16V
C6922	403 135 7409	ELECT 22U M 50V
C6924	403 071 2001	CERAMIC 180P K 50V (VHR-495E ONLY)
C6925	403 168 6202	MT-POLYEST 0.33U J 50V (VHR-495E ONLY)
C6926	403 184 9805	MT-POLYEST 0.22U J 50V (VHR-495E ONLY)
(RESISTORS)		
R1001	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R1002	401 037 8005	MT-GLAZE 15K JA 1/10W
R1003	401 037 5608	MT-GLAZE 10K JA 1/10W
R1004	401 038 9001	MT-GLAZE 680 JA 1/10W
R1005	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R1006	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R1007	401 037 5400	MT-GLAZE 1K JA 1/10W
R1008	401 037 5400	MT-GLAZE 1K JA 1/10W
R1009	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1010	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R1011	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1012	401 037 5400	MT-GLAZE 1K JA 1/10W
R1013	401 037 5400	MT-GLAZE 1K JA 1/10W
R1014	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R1015	401 039 0502	MT-GLAZE 82K JA 1/10W
R1016	401 037 5400	MT-GLAZE 1K JA 1/10W
R1017	401 037 5400	MT-GLAZE 1K JA 1/10W
R1018	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R1020	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R1021	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R1022	401 037 5608	MT-GLAZE 10K JA 1/10W
R1024	401 037 5400	MT-GLAZE 1K JA 1/10W
R1029	401 038 0602	MT-GLAZE 220 JA 1/10W
R1030	401 039 0304	MT-GLAZE 820 JA 1/10W
R1032	401 038 3504	MT-GLAZE 330 JA 1/10W
R1035	401 037 5608	MT-GLAZE 10K JA 1/10W
R1037	401 037 5202	MT-GLAZE 100 JA 1/10W
R1038	401 037 5400	MT-GLAZE 1K JA 1/10W
R1101	401 038 3504	MT-GLAZE 330 JA 1/10W
R1102	401 038 5003	MT-GLAZE 390 JA 1/10W
R1103	401 037 5400	MT-GLAZE 1K JA 1/10W
R1104	401 037 5400	MT-GLAZE 1K JA 1/10W
R1202	401 022 6702	CARBON 75 JA 1/4W
R1203	401 022 6702	CARBON 75 JA 1/4W
R1204	401 021 1807	CARBON 560 JA 1/4W
R1206	401 038 0602	MT-GLAZE 220 JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R1211	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R1213	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R1215	401 037 5400	MT-GLAZE 1K JA 1/10W
R1218	401 038 8905	MT-GLAZE 68 JA 1/10W
R1221	401 012 6903	CARBON 10K JA 1/4W
R1222	401 012 6903	CARBON 10K JA 1/4W
R1223	401 021 2903	CARBON 5.6K JA 1/4W
R1224	401 021 2903	CARBON 5.6K JA 1/4W
R1225	401 021 0602	CARBON 56 JA 1/4W
R1226	401 012 4404	CARBON 100 JA 1/4W
R1229	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R1401	401 012 5609	CARBON 1K JA 1/4W
R2001	401 037 5202	MT-GLAZE 100 JA 1/10W
R2002	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R2003	401 038 8905	MT-GLAZE 68 JA 1/10W
R2004	401 038 5409	MT-GLAZE 390K JA 1/10W
R2005	401 038 8608	MT-GLAZE 6.2K JA 1/10W
R2009	401 037 5806	MT-GLAZE 1M JA 1/10W
R2010	401 037 9309	MT-GLAZE 18K JA 1/10W
R2011	401 037 5608	MT-GLAZE 10K JA 1/10W
R2012	401 037 9309	MT-GLAZE 18K JA 1/10W
R2013	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R2014	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R2018	401 038 0800	MT-GLAZE 22K JA 1/10W
R2021	401 018 1506	CARBON 33 JA 1/4W
R2022	401 038 6208	MT-GLAZE 47 JA 1/10W
R2023	401 037 8005	MT-GLAZE 15K JA 1/10W
R2024	401 038 5508	MT-GLAZE 4.7 JA 1/10W
R2025	401 038 6505	MT-GLAZE 47K JA 1/10W
R2026	401 038 3702	MT-GLAZE 33K JA 1/10W
R2031	401 038 5300	MT-GLAZE 39K JA 1/10W
R2032	401 037 6803	MT-GLAZE 12K JA 1/10W
R2033	401 038 5300	MT-GLAZE 39K JA 1/10W
R2034	401 037 5608	MT-GLAZE 10K JA 1/10W
R2071	401 039 0205	MT-GLAZE 82 JA 1/10W
R2082	401 020 4601	CARBON 4.7M JA 1/4W (VHR-495E ONLY)
R2083	401 037 5608	MT-GLAZE 10K JA 1/10W (VHR-495E ONLY)
R2084	401 038 7809	MT-GLAZE 56K JA 1/10W (VHR-495E ONLY)
R2085	401 037 9309	MT-GLAZE 18K JA 1/10W (VHR-495E ONLY)
OR	401 037 6803	MT-GLAZE 12K JA 1/10W (VHR-475G ONLY)
R2091	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R2107	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R2108	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R2109	401 038 7601	MT-GLAZE 560 JA 1/10W
R2123	401 038 6307	MT-GLAZE 470 JA 1/10W
R3001 ⚠	402 067 7402	FUSIBLE RES 3.3 JA 1/2W
R3004	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R3008	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R3009	401 037 5608	MT-GLAZE 10K JA 1/10W
R3011	401 038 6505	MT-GLAZE 47K JA 1/10W
R3013	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R3014	401 014 9001	CARBON 16K JA 1/4W
R3015	401 037 8708	MT-GLAZE 16K JA 1/10W
R3018	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R3019	401 037 9309	MT-GLAZE 18K JA 1/10W
R3022	401 012 8006	CARBON 100K JA 1/4W (VHR-495E ONLY)
R3023	401 037 5400	MT-GLAZE 1K JA 1/10W
R3024	401 037 5400	MT-GLAZE 1K JA 1/10W
R3025	401 037 5400	MT-GLAZE 1K JA 1/10W
R3026	401 037 5400	MT-GLAZE 1K JA 1/10W
R3032	401 038 3702	MT-GLAZE 33K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R3034	401 037 6803	MT-GLAZE 12K JA 1/10W
R3035	401 037 5608	MT-GLAZE 10K JA 1/10W
R3036	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3047	401 038 0107	MT-GLAZE 2K JA 1/10W
R3048	401 037 7305	MT-GLAZE 1.3K JA 1/10W
R3049	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R3050	401 038 0800	MT-GLAZE 22K JA 1/10W
R3051	401 038 0800	MT-GLAZE 22K JA 1/10W
R3081	401 012 5609	CARBON 1K JA 1/4W (VHR-495E ONLY)
R3083	401 012 5609	CARBON 1K JA 1/4W (VHR-475G ONLY)
R3084	401 012 5609	CARBON 1K JA 1/4W (VHR-475G ONLY)
R3085	401 037 5400	MT-GLAZE 1K JA 1/10W (VHR-495E ONLY)
R3101	401 037 5608	MT-GLAZE 10K JA 1/10W
R3102	401 037 5608	MT-GLAZE 10K JA 1/10W
R3103	401 037 5608	MT-GLAZE 10K JA 1/10W
R3104	401 037 5608	MT-GLAZE 10K JA 1/10W
R3501	401 037 5707	MT-GLAZE 100K JA 1/10W
R3502	401 037 5707	MT-GLAZE 100K JA 1/10W
R3503	401 038 3801	MT-GLAZE 330K JA 1/10W
R3504	401 037 8104	MT-GLAZE 150K JA 1/10W
R3505	401 037 8005	MT-GLAZE 15K JA 1/10W
R3506	401 038 0909	MT-GLAZE 220K JA 1/10W
R3507	401 037 8104	MT-GLAZE 150K JA 1/10W
R3508	401 017 2702	CARBON 27K JA 1/4W
R3509	401 037 5202	MT-GLAZE 100 JA 1/10W
R3510	401 037 5202	MT-GLAZE 100 JA 1/10W
R3516	401 039 1004	MT-GLAZE 9.1K JA 1/10W
R3517	401 038 6505	MT-GLAZE 47K JA 1/10W
R3518	401 038 6505	MT-GLAZE 47K JA 1/10W
R3520	401 038 5409	MT-GLAZE 390K JA 1/10W
R3521	401 037 5608	MT-GLAZE 10K JA 1/10W
R3525	401 037 5400	MT-GLAZE 1K JA 1/10W
R3526	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R3527	401 037 5400	MT-GLAZE 1K JA 1/10W
R3528	401 038 7106	MT-GLAZE 510 JA 1/10W
R3529	401 038 7106	MT-GLAZE 510 JA 1/10W
R3533	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R3537	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R3546	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R3547	401 037 8005	MT-GLAZE 15K JA 1/10W
R3549	401 037 5608	MT-GLAZE 10K JA 1/10W
R3550	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R3551	401 037 5608	MT-GLAZE 10K JA 1/10W
R3552	401 037 5707	MT-GLAZE 100K JA 1/10W
R3553	401 038 0909	MT-GLAZE 220K JA 1/10W
R3555	401 037 5707	MT-GLAZE 100K JA 1/10W
R3556	401 037 5608	MT-GLAZE 10K JA 1/10W
R3557	401 038 3801	MT-GLAZE 330K JA 1/10W
R3558	401 038 6307	MT-GLAZE 470 JA 1/10W
R3560	401 037 5400	MT-GLAZE 1K JA 1/10W
R5001	402 013 9108	SOLID 2.7M KB 1/2W
R5010	401 017 3709	CARBON 270K JA 1/4W
R5011	401 017 3709	CARBON 270K JA 1/4W
R5012	401 037 9408	MT-GLAZE 180K JA 1/10W
R5013	401 038 6208	MT-GLAZE 47 JA 1/10W
R5014	401 037 5608	MT-GLAZE 10K JA 1/10W
R5020	401 071 2403	OXIDE-MT 15K JA 3W
R5101	401 012 3308	CARBON 10 JA 1/4W
R5102	401 017 1705	CARBON 2.7K JA 1/4W
R5103	401 023 6206	CARBON 9.1 JA 1/4W
R5104	401 038 6505	MT-GLAZE 47K JA 1/10W
R5105	401 017 0708	CARBON 270 JA 1/4W
R5106	401 021 1807	CARBON 560 JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION
R5108	401 020 1907	CARBON 4.7K JA 1/4W
R5109	401 020 1907	CARBON 4.7K JA 1/4W
R5110 ⚠	402 071 3100	FUSIBLE RES 27 JA 1/4W
R6001	401 038 5409	MT-GLAZE 390K JA 1/10W
R6002	401 038 2309	MT-GLAZE 270K JA 1/10W
R6003	401 038 5409	MT-GLAZE 390K JA 1/10W (VHR-495E ONLY)
R6004	401 038 6604	MT-GLAZE 470K JA 1/10W (VHR-495E ONLY)
R6006	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R6008	401 037 5806	MT-GLAZE 1M JA 1/10W (VHR-495E ONLY)
R6009	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R6071 ⚠	402 042 0701	FUSIBLE RES 680 GA 1/4W
R6691	401 037 5400	MT-GLAZE 1K JA 1/10W
R6692	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R6901	401 037 5202	MT-GLAZE 100 JA 1/10W
R6902	401 037 5400	MT-GLAZE 1K JA 1/10W
R6903	401 038 3504	MT-GLAZE 330 JA 1/10W
R6904	401 037 5608	MT-GLAZE 10K JA 1/10W
R6905	401 038 6307	MT-GLAZE 470 JA 1/10W
R6906	401 038 3801	MT-GLAZE 330K JA 1/10W
R6907	401 037 5608	MT-GLAZE 10K JA 1/10W
R6908	401 039 0205	MT-GLAZE 82 JA 1/10W
R6909	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R6910	401 037 5400	MT-GLAZE 1K JA 1/10W
R6911	401 038 7106	MT-GLAZE 510 JA 1/10W
R6914	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R6915	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R6916	401 012 4404	CARBON 100 JA 1/4W
R6921	401 038 3702	MT-GLAZE 33K JA 1/10W (VHR-495E ONLY)
R6922	401 037 5608	MT-GLAZE 10K JA 1/10W (VHR-495E ONLY)
R6923	401 012 6903	CARBON 10K JA 1/4W (VHR-495E ONLY)
R6924	401 037 9309	MT-GLAZE 18K JA 1/10W (VHR-495E ONLY)
R6925	401 037 8005	MT-GLAZE 15K JA 1/10W (VHR-495E ONLY)
R6926	401 037 6803	MT-GLAZE 12K JA 1/10W (VHR-495E ONLY)
R6927	401 037 6605	MT-GLAZE 120 JA 1/10W (VHR-495E ONLY)
(FUSE)		
F5001 ⚠	423 021 8402	FUSE 250V 2.5A
(PROTECTOR)		
PR511 ⚠	645 005 9834	PROTECTOR,IC 1.0A 50V
(CONNECTORS)		
CN121	613 111 5712	SOCKET,21P
OR	645 002 4528	SOCKET,RGB 21P
OR	645 003 1656	SOCKET,RGB 21P
CN501 ⚠	645 000 5411	SOCKET,INLET AC
(MISCELLANEOUS)		
	645 008 7660	HOLDER,FUSE,F5001
OR	645 008 7677	HOLDER,FUSE,F5001

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COMPL PWB,VP-1

COMPL.NO 613 160 6883

LOCATION	PARTS NO.	DESCRIPTION
(SEMICONDUCTORS)		
Q1902	405 015 9701	TR 2SC2814-F4
OR	405 015 9909	TR 2SC2814-F5
OR	405 035 6100	TR 2SC2413K-Q
Q1903	405 015 9701	TR 2SC2814-F4
OR	405 015 9909	TR 2SC2814-F5
OR	405 035 6100	TR 2SC2413K-Q
Q1904	405 015 8407	TR 2SC2812-L5
OR	405 015 8704	TR 2SC2812-L6
OR	405 014 4509	TR 2SC2412K-R
OR	405 014 4608	TR 2SC2412K-S
(INTEGRATED CIRCUIT)		
IC180	409 348 1104	IC LA7416
(INDUCTORS)		
L1851	645 002 1473	INDUCTOR 39U K
OR	645 003 8136	INDUCTOR,39U K
L1852	645 001 4666	INDUCTOR 220U K
OR	645 003 8044	INDUCTOR,220U K
L1853	645 001 4666	INDUCTOR 220U K
OR	645 003 8044	INDUCTOR,220U K
L1901	645 003 7900	INDUCTOR,10U K
OR	645 001 4550	INDUCTOR 10U K
L1903	645 001 5519	INDUCTOR 47U K
OR	645 010 2172	INDUCTOR,47U K
L1904	645 003 8068	INDUCTOR,27U K
OR	645 003 8426	INDUCTOR,27U K
L1905	645 003 7962	INDUCTOR,15U K
OR	645 001 4635	INDUCTOR 15U K
(CAPACITORS)		
C1801	403 069 5601	CERAMIC 0.01U K 50V
C1803	403 073 9107	CERAMIC 4700P K 50V
C1808	403 068 0409	CERAMIC 0.1U Z 25V
C1812	403 068 0409	CERAMIC 0.1U Z 25V
C1813	403 069 5601	CERAMIC 0.01U K 50V
C1814	403 068 0409	CERAMIC 0.1U Z 25V
C1815	403 284 9408	OS-SOLID 3.3U M 16V
C1817	403 068 0409	CERAMIC 0.1U Z 25V
C1818	403 068 0409	CERAMIC 0.1U Z 25V
C1819	403 069 5601	CERAMIC 0.01U K 50V
C1820	403 069 5601	CERAMIC 0.01U K 50V
C1822	403 069 5601	CERAMIC 0.01U K 50V
C1823	403 069 5601	CERAMIC 0.01U K 50V
C1827	403 069 5601	CERAMIC 0.01U K 50V
C1828	403 069 5601	CERAMIC 0.01U K 50V
C1830	403 069 5601	CERAMIC 0.01U K 50V
C1851	403 010 8606	CERAMIC 12P J 50V
C1853	403 009 5807	CERAMIC 100P J 50V
C1854	403 014 9302	CERAMIC 180P J 50V
C1857	403 012 6907	CERAMIC 15P J 50V
C1861	403 068 0409	CERAMIC 0.1U Z 25V
C1901	403 069 5601	CERAMIC 0.01U K 50V
C1902	403 022 8304	CERAMIC 33P J 50V
C1905	403 022 8304	CERAMIC 33P J 50V
C1906	403 026 2902	CERAMIC 47P J 50V
C1907	403 028 4201	CERAMIC 56P J 50V
C1911	403 068 0409	CERAMIC 0.1U Z 25V
(RESISTORS)		
R1805	401 038 9308	MT-GLAZE 68K JA 1/10W
R1806	401 037 5707	MT-GLAZE 100K JA 1/10W
R1808	401 037 8005	MT-GLAZE 15K JA 1/10W
R1814	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1817	401 038 0800	MT-GLAZE 22K JA 1/10W
R1818	401 038 0800	MT-GLAZE 22K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R1851	401 037 9200	MT-GLAZE 1.8K JA 1/10W
R1852	401 037 7909	MT-GLAZE 1.5K JA 1/10W
R1854	401 037 5400	MT-GLAZE 1K JA 1/10W
R1902	401 038 7601	MT-GLAZE 560 JA 1/10W
R1903	401 038 0800	MT-GLAZE 22K JA 1/10W
R1904	401 038 0800	MT-GLAZE 22K JA 1/10W
R1905	401 038 5003	MT-GLAZE 390 JA 1/10W
R1906	401 038 5003	MT-GLAZE 390 JA 1/10W
R1907	401 037 5400	MT-GLAZE 1K JA 1/10W
R1908	401 037 5400	MT-GLAZE 1K JA 1/10W
R1909	401 038 9001	MT-GLAZE 680 JA 1/10W
R1910	401 038 6307	MT-GLAZE 470 JA 1/10W
R1911	401 037 5400	MT-GLAZE 1K JA 1/10W
R1912	401 038 2002	MT-GLAZE 270 JA 1/10W
(JUMPERS)		
J1811	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1855	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1857	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1861	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1862	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1864	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
J1881	401 037 5004	MT-GLAZE 0.000 ZA 1/10W

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CŌMPL PWB,TM-1

COMPL.NO	613 160 4131	(VHR-495E)
COMPL.NO	613 160 8030	(VHR-475G)
(SEMICŌNDUCTŌR)		
Q7101	405 063 8404	TR DTC114EL(VHR-495E ONLY)
(DIŌDES)		
D7101	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D7102	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D7103	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D7104	407 007 9904	DIODE GMA01
OR	407 012 4406	DIODE 1SS133
D7123	407 163 3600	LED SEL2715Y-D,DMSS-LED (VHR-495E ONLY)
OR	407 163 3501	LED SEL2715Y-C,DMSS-LED (VHR-495E ONLY)
(CAPACITŌR)		
C7101	403 043 8802	ELECT 4.7U M 16V
(RESISTŌRS)		
R7105	401 015 8805	CARBON 200 JA 1/4W (VHR-495E ONLY)
R7110	401 020 1907	CARBON 4.7K JA 1/4W (VHR-495E ONLY)
(SWITCHES)		
S7101	613 006 3649	PUSH SWITCH,POWER
OR	613 079 4130	SW,PUSH,POWER
OR	645 001 9777	SWITCH,PUSH 1P-1T,POWER
OR	645 006 2797	SWITCH,PUSH 1P-1T,POWER
OR	645 008 8049	SWITCH,PUSH 1P-1T,POWER
S7102	613 006 3649	PUSH SWITCH,STOP/EJECT
OR	613 079 4130	SW,PUSH,STOP/EJECT
OR	645 001 9777	SWITCH,PUSH 1P-1T,STOP/EJECT
OR	645 006 2797	SWITCH,PUSH 1P-1T,STOP/EJECT
OR	645 008 8049	SWITCH,PUSH 1P-1T,STOP/EJECT
S7103	613 006 3649	PUSH SWITCH,CH-UP
S7103	613 079 4130	SW,PUSH,CH-UP
OR	645 001 9777	SWITCH,PUSH 1P-1T,CH-UP
OR	645 006 2797	SWITCH,PUSH 1P-1T,CH-UP
OR	645 008 8049	SWITCH,PUSH 1P-1T,CH-UP
S7104	613 006 3649	PUSH SWITCH,CH-DOWN
OR	613 079 4130	SW,PUSH,CH-DOWN
OR	645 001 9777	SWITCH,PUSH 1P-1T,CH-DOWN
OR	645 006 2797	SWITCH,PUSH 1P-1T,CH-DOWN
OR	645 008 8049	SWITCH,PUSH 1P-1T,CH-DOWN
S7106	613 006 3649	PUSH SWITCH,PAUSE
OR	613 079 4130	SW,PUSH,PAUSE
OR	645 001 9777	SWITCH,PUSH 1P-1T,PAUSE
OR	645 006 2797	SWITCH,PUSH 1P-1T,PAUSE
OR	645 008 8049	SWITCH,PUSH 1P-1T,PAUSE
S7107	613 006 3649	PUSH SWITCH,REW
OR	613 079 4130	SW,PUSH,REW
OR	645 001 9777	SWITCH,PUSH 1P-1T,REW
OR	645 006 2797	SWITCH,PUSH 1P-1T,REW
OR	645 008 8049	SWITCH,PUSH 1P-1T,REW
S7108	613 006 3649	PUSH SWITCH,PLAY
OR	613 079 4130	SW,PUSH,PLAY
OR	645 001 9777	SWITCH,PUSH 1P-1T,PLAY
OR	645 006 2797	SWITCH,PUSH 1P-1T,PLAY
OR	645 008 8049	SWITCH,PUSH 1P-1T,PLAY
S7109	613 006 3649	PUSH SWITCH,FF
OR	613 079 4130	SW,PUSH,FF
OR	645 001 9777	SWITCH,PUSH 1P-1T,FF
OR	645 006 2797	SWITCH,PUSH 1P-1T,FF
OR	645 008 8049	SWITCH,PUSH 1P-1T,FF
S7110	613 006 3649	PUSH SWITCH,REC
OR	613 079 4130	SW,PUSH,REC
OR	645 001 9777	SWITCH,PUSH 1P-1T,REC
OR	645 006 2797	SWITCH,PUSH 1P-1T,REC
OR	645 008 8049	SWITCH,PUSH 1P-1T,REC
(REMŌTE RECEIVERS)		
RR711	613 129 0938	IR RECEIVER PACK UNIT
OR	645 006 8720	UNIT,IR RECEIVER PACK
OR	645 008 7875	UNIT,IR RECEIVER PACK
(DISPLAYS)		
A7101	645 004 0597	FLUORESCENT TUBE
OR	645 004 0603	FLUORESCENT TUBE
(MISCELLANEŌUS)		
	613 139 2267	HOLDER FL
	613 142 4913	HOLDER LED(VHR-495E ONLY)
	613 163 1700	HOLDER IR

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CŌMPL PCB,TM-8

COMPL.NO	613 134 4730	(VHR-475G)
(INTEGRATED CIRCUITS)		
IC781	409 148 5104	IC SDA5642
OR	409 338 8809	IC SDA5642-5
(CAPACITŌRS)		
C7802	403 013 3103	CERAMIC 150P J 50V
C7803	403 256 4608	MT-COMPO 0.33U J 50V
C7804	403 057 2407	POLYESTER 0.1U J 50V
(RESISTŌRS)		
R7805	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R7806	401 037 5806	MT-GLAZE 1M JA 1/10W
R7807	401 039 0601	MT-GLAZE 820K JA 1/10W
R7808	401 037 5707	MT-GLAZE 100K JA 1/10W
R7809	401 037 5608	MT-GLAZE 10K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R7810	401 037 7008	MT-GLAZE 1.2M JA 1/10W
R7811	401 037 5202	MT-GLAZE 100 JA 1/10W
R7812	401 038 7700	MT-GLAZE 5.6K JA 1/10W

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CŌMPL PCB,TM-9

COMPL.NO 613 158 5751 (VHR-495E)

(INTEGRATED CIRCUIT)

IC771	409 340 9600	IC SDA5649

(CAPACITŌRS)

C7701	403 060 7505	POLYESTER 0.033U J 50V
C7702	403 071 8102	CERAMIC 2200P K 50V
C7703	403 256 4608	MT-COMPO 0.33U J 50V
C7704	403 013 3004	CERAMIC 150P J 50V
C7705	403 068 0409	CERAMIC 0.1U Z 25V

(RESISTŌRS)

R7701	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R7702	401 037 7008	MT-GLAZE 1.2M JA 1/10W
R7703	401 038 9209	MT-GLAZE 6.8K JA 1/10W
R7704	401 037 7008	MT-GLAZE 1.2M JA 1/10W
R7705	401 037 5806	MT-GLAZE 1M JA 1/10W
R7706	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R7707	401 037 5707	MT-GLAZE 100K JA 1/10W
R7708	401 037 5608	MT-GLAZE 10K JA 1/10W

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CŌMPL PWB,PW-1

COMPL.NO 613 160 3615

(INTEGRATED CIRCUIT)

IC541	409 344 6509	IC UPC1093T

(DIŌDES)

D5301	407 169 5608	PHOTO COUPLE PC123U2
D5303	407 148 7609	DIODE DAN217-T146

(CAPACITŌRS)

C5301	403 130 3109	CERAMIC 0.047U K 50V
C5303	403 070 2606	CERAMIC 0.1U Z 50V
C5401	403 130 3109	CERAMIC 0.047U K 50V
C5402	403 069 1702	CERAMIC 1000P K 50V

(RESISTŌRS)

R5301	401 037 5400	MT-GLAZE 1K JA 1/10W
R5302	401 038 7809	MT-GLAZE 56K JA 1/10W
R5303	401 037 5608	MT-GLAZE 10K JA 1/10W
R5307	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
R5401	401 038 3504	MT-GLAZE 330 JA 1/10W
R5402	401 038 7601	MT-GLAZE 560 JA 1/10W
R5403	401 038 7601	MT-GLAZE 560 JA 1/10W
R5404	401 038 5102	MT-GLAZE 3.9K JA 1/10W
R5405	401 038 2101	MT-GLAZE 2.7K JA 1/10W
R5406	401 038 3504	MT-GLAZE 330 JA 1/10W
R5407	401 038 2101	MT-GLAZE 2.7K JA 1/10W

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CŌMPL PWB,AD-5

COMPL.NO 613 160 7743 (VHR-495E)

(SEMICŌNDUCTŌRS)

Q2501	405 015 8407	TR 2SC2812-L5
OR	405 015 8704	TR 2SC2812-L6
OR	405 014 4509	TR 2SC2412K-R
OR	405 014 4608	TR 2SC2412K-S
Q2502	405 015 8407	TR 2SC2812-L5
OR	405 015 8704	TR 2SC2812-L6
OR	405 014 4509	TR 2SC2412K-R
OR	405 014 4608	TR 2SC2412K-S
Q2504	405 015 8407	TR 2SC2812-L5
OR	405 015 8704	TR 2SC2812-L6
OR	405 014 4509	TR 2SC2412K-R
OR	405 014 4608	TR 2SC2412K-S

(INTEGRATED CIRCUITS)

IC251	409 322 3001	IC LC93028A-909
OR	409 344 6004	IC LC21005A-V47N
OR	410 229 9607	IC LC21005A-V47DU
IC253	409 123 4306	IC LM33256N-15
OR	409 158 1400	IC LM33256G-12
OR	409 235 1408	IC LM33256G-10
OR	409 314 8403	IC LC32256P-80
IC254	409 167 7202	IC NJM2406F-TE1
IC255	409 117 9201	IC BA15218N
OR	409 211 6601	IC NJM4558L

(DIŌDE)

D2501	407 003 3609	DIODE DAN202K

(CRYSTAL DEVICES)

X2501	645 000 1239	OSC,CERAMIC 4.25MHZ
OR	645 002 9202	OSC,CERAMIC 4.25MHZ

(CAPACITŌRS)

C2501	403 193 7809	ELECT 100U M 16V
C2502	403 072 1607	CERAMIC 0.022U K 50V
C2506	403 159 8109	ELECT 100U M 6.3V
C2507	403 072 1607	CERAMIC 0.022U K 50V
C2508	403 072 1607	CERAMIC 0.022U K 50V
C2511	403 072 1607	CERAMIC 0.022U K 50V
C2512	403 072 1607	CERAMIC 0.022U K 50V
C2514	403 070 2606	CERAMIC 0.1U Z 50V
C2515	403 070 2606	CERAMIC 0.1U Z 50V
C2516	403 018 7502	CERAMIC 220P J 50V
C2517	403 163 7907	ELECT 47U M 6.3V
C2518	403 070 2606	CERAMIC 0.1U Z 50V
C2519	403 163 7907	ELECT 47U M 6.3V
C2520	403 070 2606	CERAMIC 0.1U Z 50V
C2523	403 073 4409	CERAMIC 0.039U K 50V
C2524	403 028 9909	CERAMIC 560P J 50V
C2525	403 130 3109	CERAMIC 0.047U K 50V
C2531	403 026 7501	CERAMIC 470P J 50V
C2541	403 026 7600	CERAMIC 470P J 50V
C2542	403 026 7600	CERAMIC 470P J 50V
C2543	403 026 7600	CERAMIC 470P J 50V
C2544	403 189 2405	ELECT 10U M 16V
C2545	403 073 9107	CERAMIC 4700P K 50V
C2546	403 026 7600	CERAMIC 470P J 50V
C2547	403 070 2606	CERAMIC 0.1U Z 50V
C2548	403 070 2606	CERAMIC 0.1U Z 50V
C2572	403 069 1702	CERAMIC 1000P K 50V

(RESISTŌRS)

R2502	401 038 9001	MT-GLAZE 680 JA 1/10W
R2504	401 037 5400	MT-GLAZE 1K JA 1/10W
R2505	401 038 0909	MT-GLAZE 220K JA 1/10W
R2509	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R2511	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R2512	401 037 5707	MT-GLAZE 100K JA 1/10W
R2513	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R2514	401 039 0403	MT-GLAZE 8.2K JA 1/10W
R2515	401 038 3603	MT-GLAZE 3.3K JA 1/10W
R2517	401 037 5400	MT-GLAZE 1K JA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
R2518	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R2519	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R2520	401 039 0502	MT-GLAZE 82K JA 1/10W
R2521	401 037 8104	MT-GLAZE 150K JA 1/10W
R2522	401 037 5707	MT-GLAZE 100K JA 1/10W
R2523	401 037 8104	MT-GLAZE 150K JA 1/10W
R2524	401 038 6406	MT-GLAZE 4.7K JA 1/10W
R2525	401 037 5608	MT-GLAZE 10K JA 1/10W
R2526	401 037 5400	MT-GLAZE 1K JA 1/10W
R2528	401 037 5806	MT-GLAZE 1M JA 1/10W
R2529	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R2531	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R2532	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R2533	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R2534	401 038 7205	MT-GLAZE 5.1K JA 1/10W
R2535	401 037 5608	MT-GLAZE 10K JA 1/10W
R2536	401 037 5608	MT-GLAZE 10K JA 1/10W
R2537	401 037 5608	MT-GLAZE 10K JA 1/10W
R2538	401 037 5608	MT-GLAZE 10K JA 1/10W
R2539	401 037 5608	MT-GLAZE 10K JA 1/10W
R2541	401 037 5608	MT-GLAZE 10K JA 1/10W
R2542	401 038 7304	MT-GLAZE 51K JA 1/10W
R2543	401 038 7304	MT-GLAZE 51K JA 1/10W
R2544	401 038 7304	MT-GLAZE 51K JA 1/10W
R2545	401 038 7304	MT-GLAZE 51K JA 1/10W
R2546	401 038 7304	MT-GLAZE 51K JA 1/10W
R2547	401 038 7304	MT-GLAZE 51K JA 1/10W
R2548	401 037 5707	MT-GLAZE 100K JA 1/10W
R2549	401 037 5707	MT-GLAZE 100K JA 1/10W
R2551	401 037 5707	MT-GLAZE 100K JA 1/10W
R2552	401 037 5707	MT-GLAZE 100K JA 1/10W
R2553	401 037 5707	MT-GLAZE 100K JA 1/10W
R2554	401 037 5707	MT-GLAZE 100K JA 1/10W
R2555	401 037 5707	MT-GLAZE 100K JA 1/10W
R2556	401 037 5707	MT-GLAZE 100K JA 1/10W
R2557	401 037 5608	MT-GLAZE 10K JA 1/10W
R2558	401 037 5707	MT-GLAZE 100K JA 1/10W
R2559	401 037 5707	MT-GLAZE 100K JA 1/10W
R2571	401 037 5608	MT-GLAZE 10K JA 1/10W
R2573	401 037 5608	MT-GLAZE 10K JA 1/10W
R2577	401 038 3702	MT-GLAZE 33K JA 1/10W
R2578	401 037 5202	MT-GLAZE 100 JA 1/10W
R2580	401 037 5400	MT-GLAZE 1K JA 1/10W
R2581	401 164 8404	MT-FILM 4.7K DU 1/10W
R2582	401 164 3102	MT-FILM 100K DU 1/10W
R2583	401 038 2200	MT-GLAZE 27K JA 1/10W
R2584	401 037 5400	MT-GLAZE 1K JA 1/10W
R2585	401 038 7809	MT-GLAZE 56K JA 1/10W
R2586	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R2587	401 164 8404	MT-FILM 4.7K DU 1/10W
(JUMPER)		
J2591	401 037 5004	MT-GLAZE 0.000 ZA 1/10W
(FUSE)		
F2501	613 086 4505	FILTER 22000PF
(MISCELLANEOUS)		
	613 156 4077	HOLDER PWB
	613 161 0309	HOLDER

****

COMPL PCB,MC-1

(CAPACITOR)

C8001	403 121 9509	CERAMIC 0.1U Z 50V

LOCATION	PARTS NO.	DESCRIPTION
(RESISTORS)		
R8001	401 016 4707	CARBON 22K JA 1/4W
R8002	401 012 6903	CARBON 10K JA 1/4W
R8003	401 017 0708	CARBON 270 JA 1/4W
R8004	401 014 2804	CARBON 150 JA 1/4W
(SWITCHES)		
S8002	645 003 4589	SWITCH,EP 1P-1T
OR	645 009 3388	SWITCH,EP 1P-1T

****

FLEXIBLE FLAT CABLE

	645 008 9992	FLEXIBLE FLAT CABLE CN301-CN711

SANYO Electric Co., Ltd.
Osaka, Japan

Feb./'95/2500 NS Printed in Japan

VHR-495E
VHR-475G

BLOCK DIAGRAMS,CIRCUIT DIAGRAMS & PRINTED WIRING BOARDS

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REFERENCE No.SM531434

NOTES:

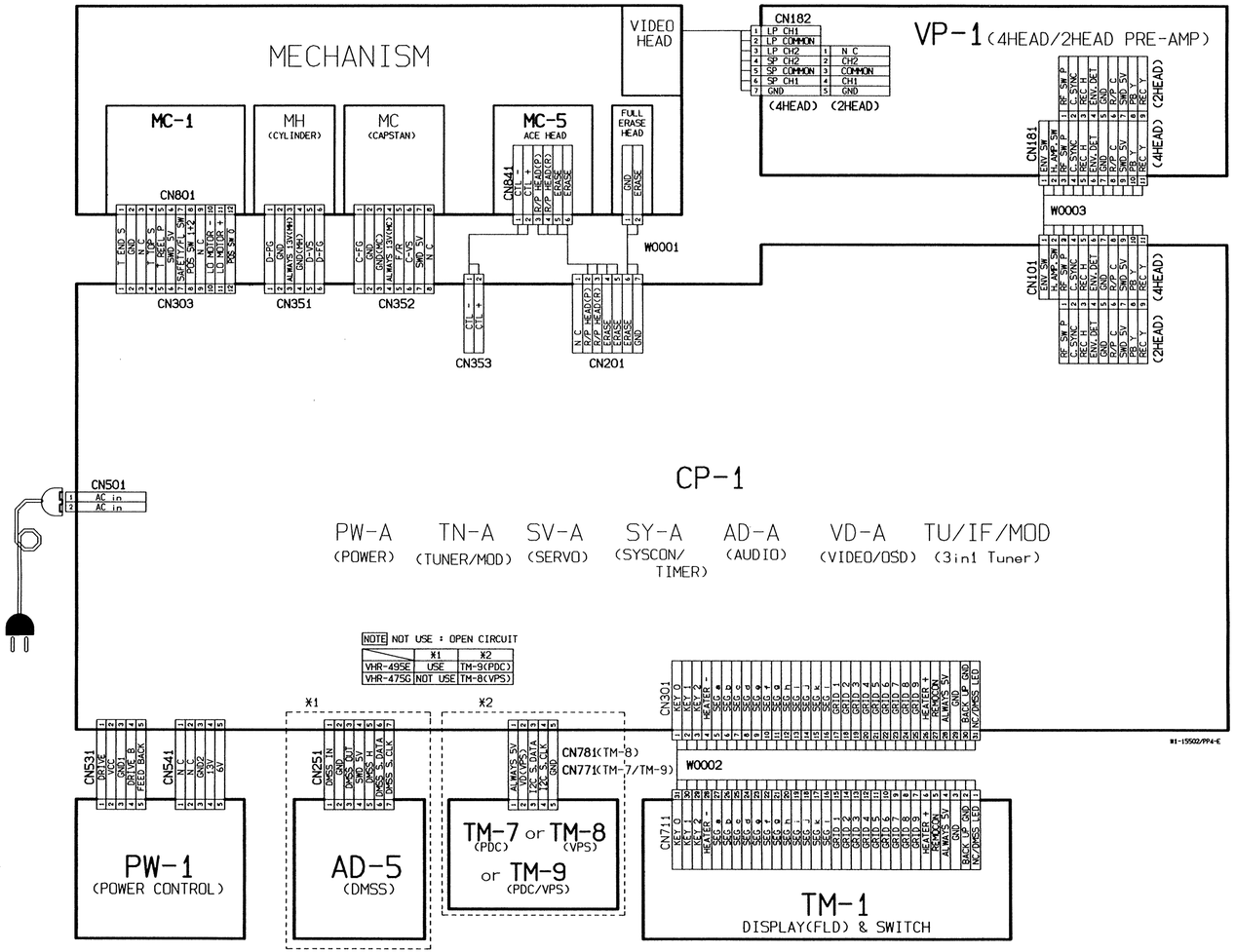
1. All resistance values in "OHMS" unless otherwise noted.
   (K=1,000 ; M=1,000,000)
2. All capacitance values in "μF" unless otherwise noted.
   p=pico farad ; μ,u or U=micro farad
3. All inductance values in "μH" unless otherwise noted.
   μ,u or U=micro henry ; m=milli henry

PRODUCT SAFETY NOTICE

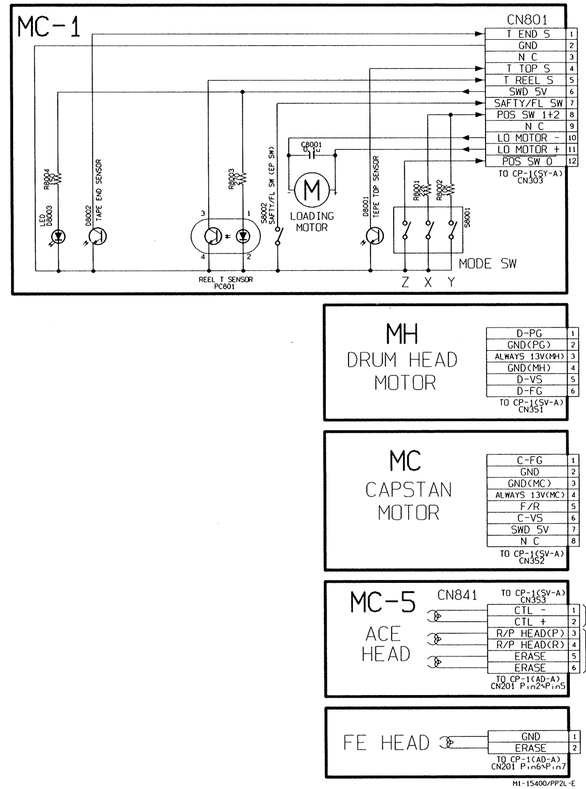
THE COMPONENTS DESIGNATED BY A SYMBOL (⚠) IN THIS SCHEMATIC DIAGRAM DESIGNATES COMPONENTS WHOSE VALUE ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY.
SHOULD ANY COMPONENT DESIGNATED BY A SYMBOL NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST.
DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

1. OVERALL WIRING, MECHANISM CONNECTION, & BLOCK DIAGRAMS

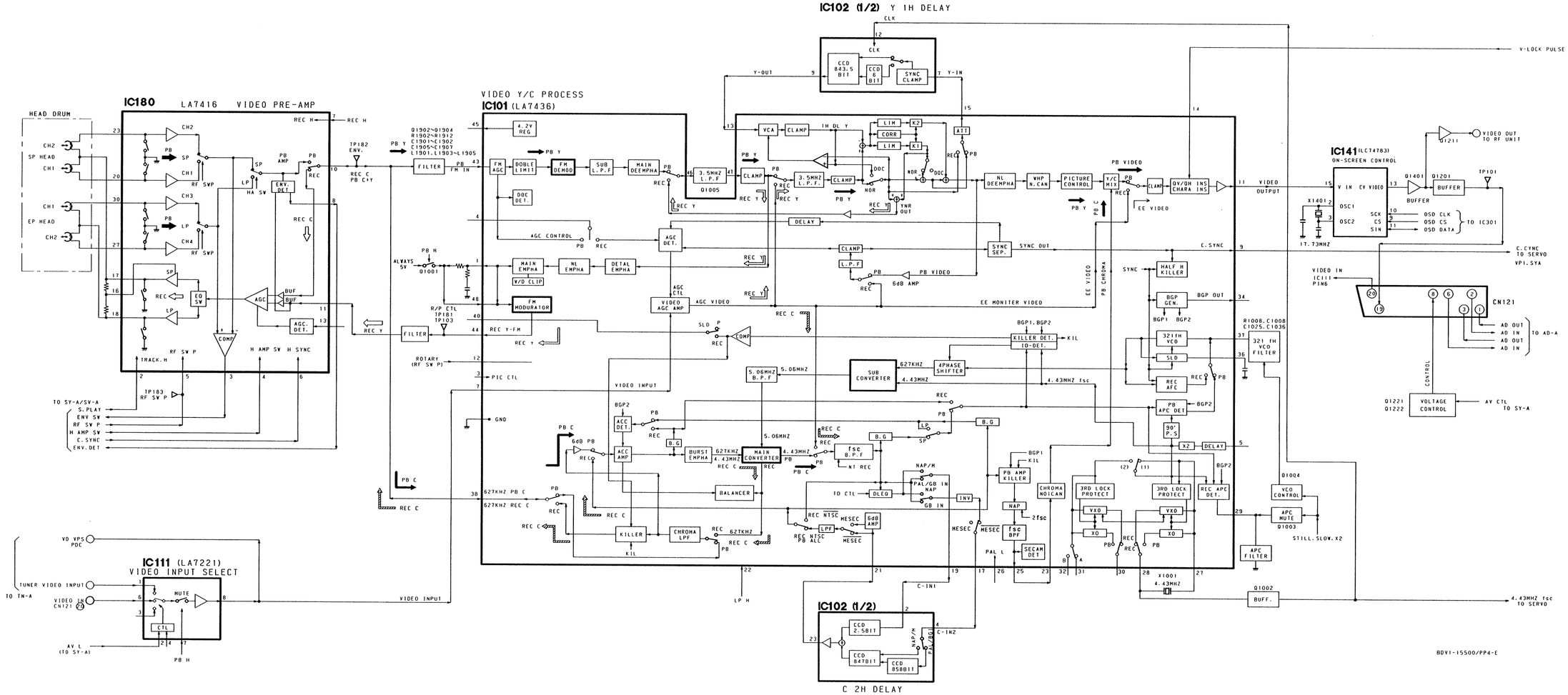
OVERALL WIRING



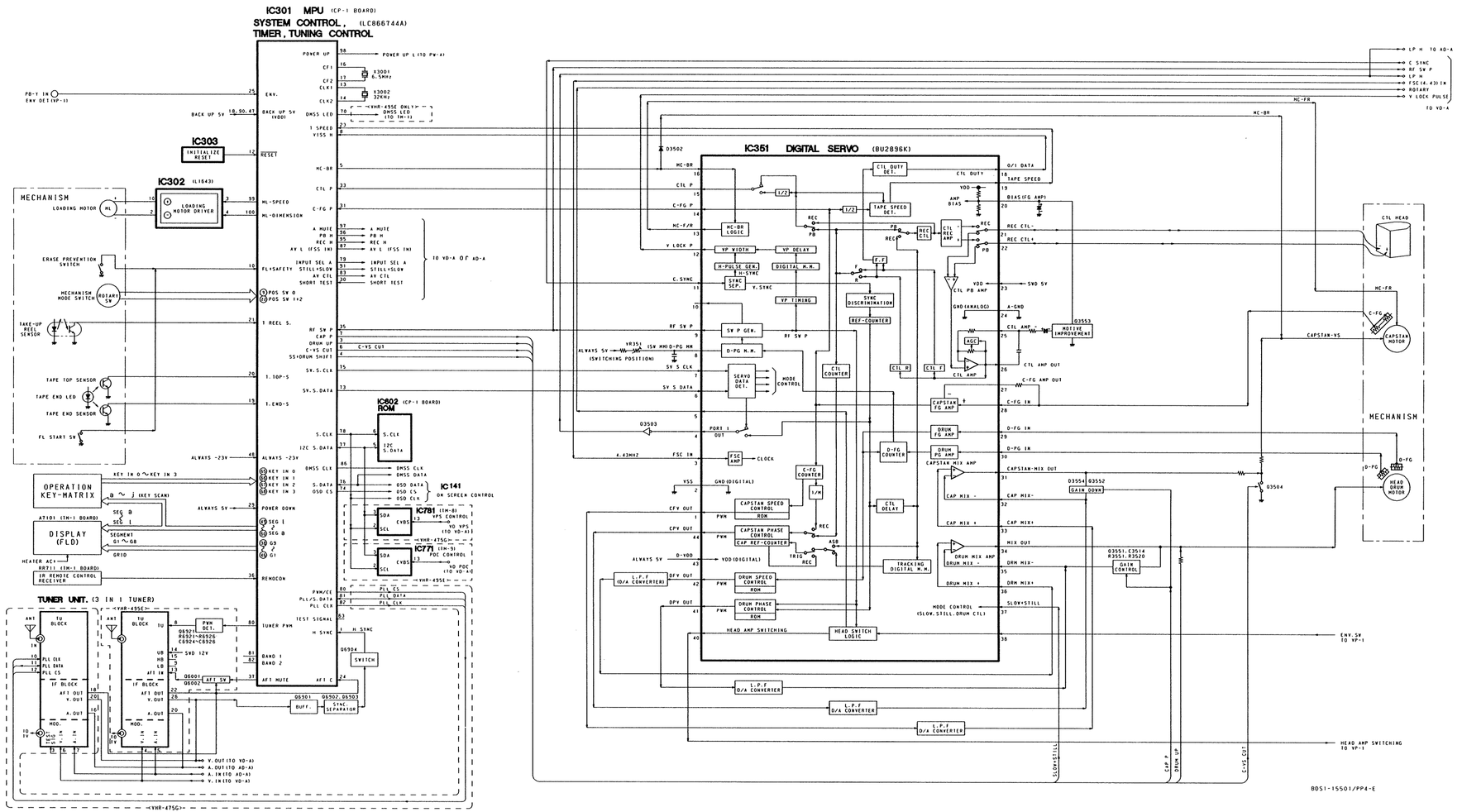
MECHANISM CONNECTION



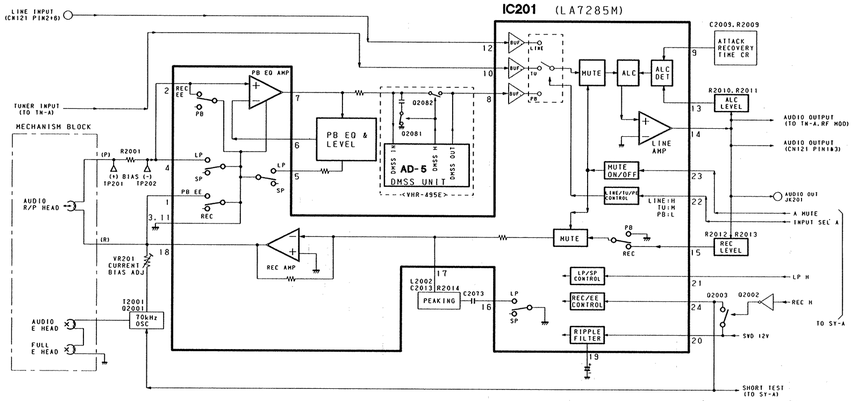
VIDEO CIRCUIT



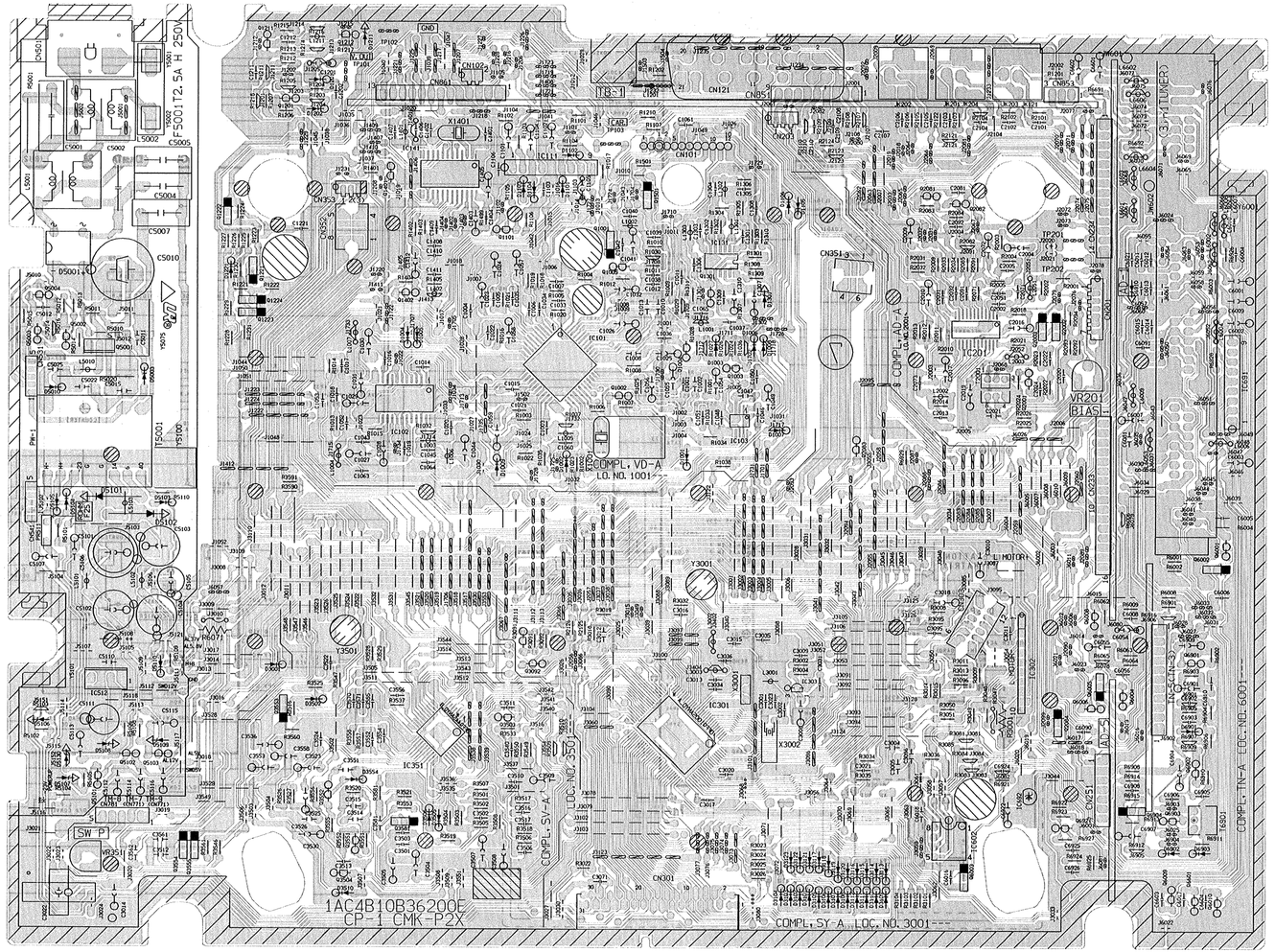
SYSTEM CONTROL & SERVO CIRCUIT



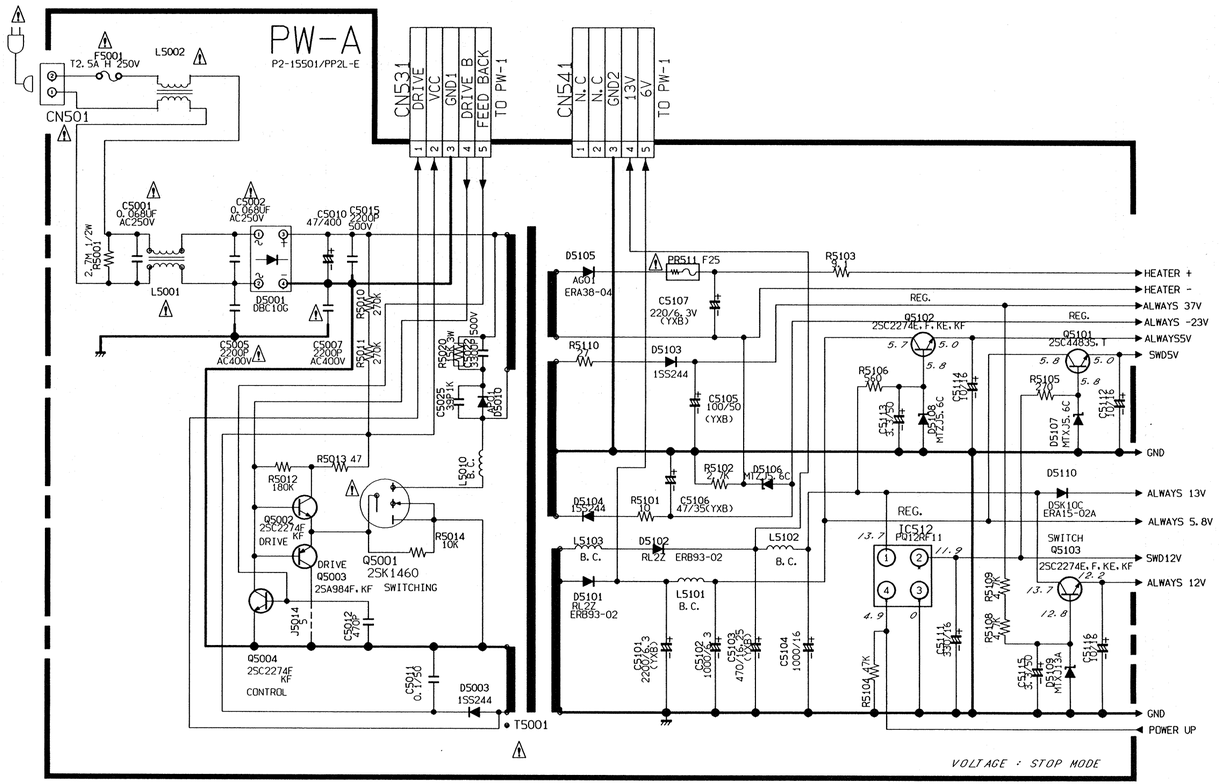
AUDIO CIRCUIT



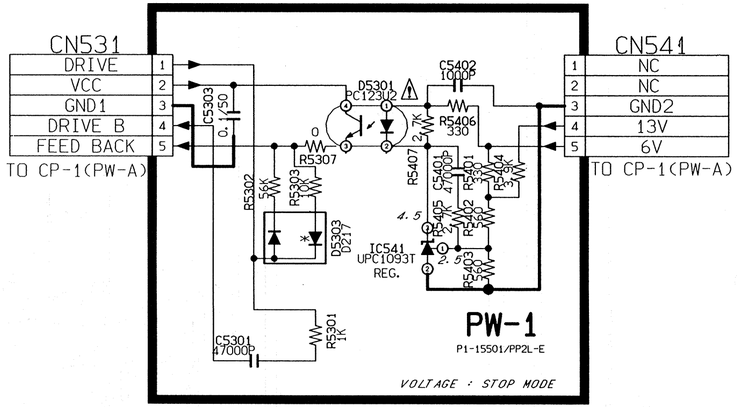
CP-1 P.W.B.



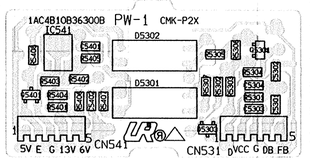
CP-1 BOARD (PW-A) POWER SUPPLY



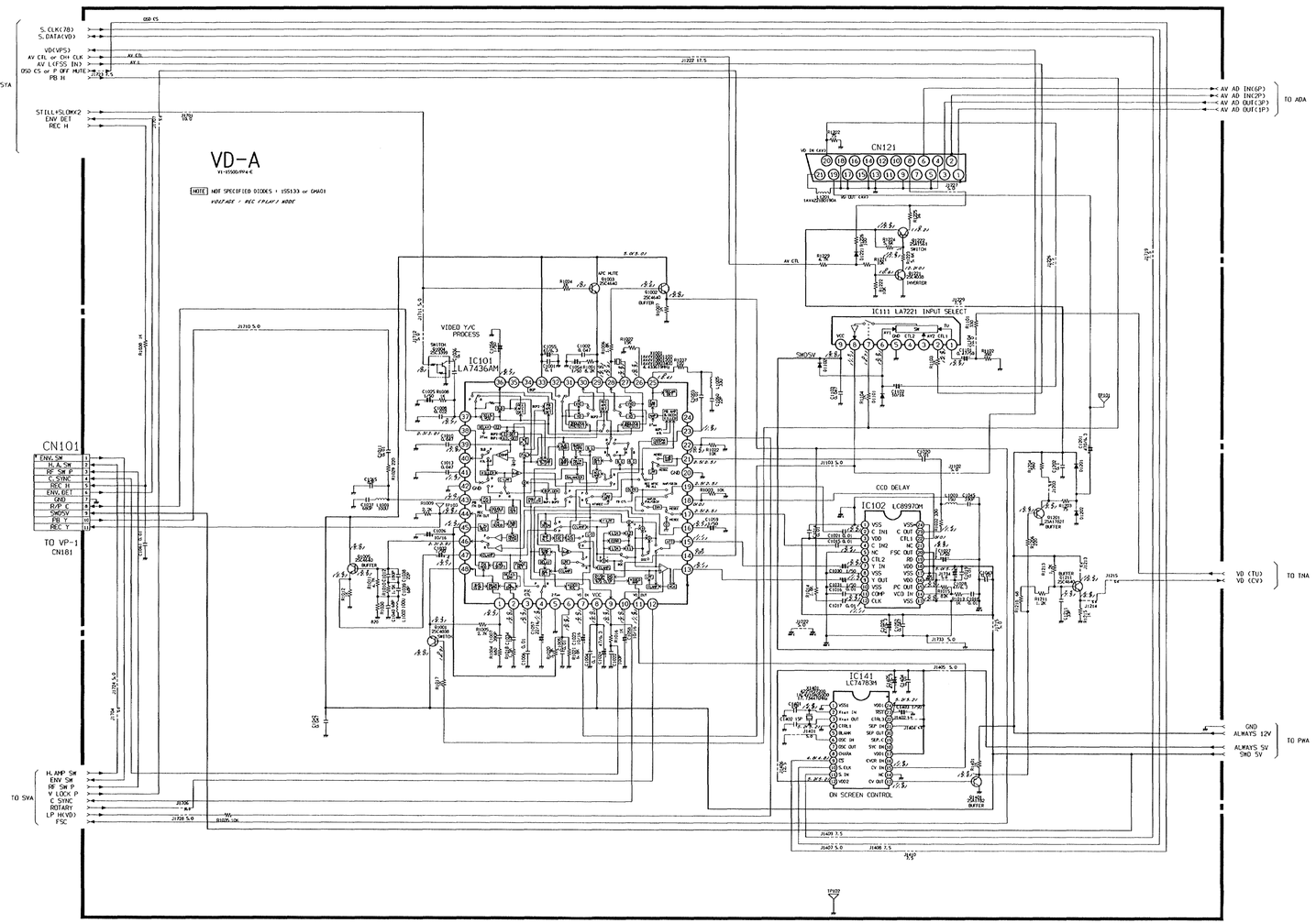
PW-1 BOARD POWER SUPPLY



PW-1 P.W.B.



CP-1 BOARD (VD-A) VIDEO

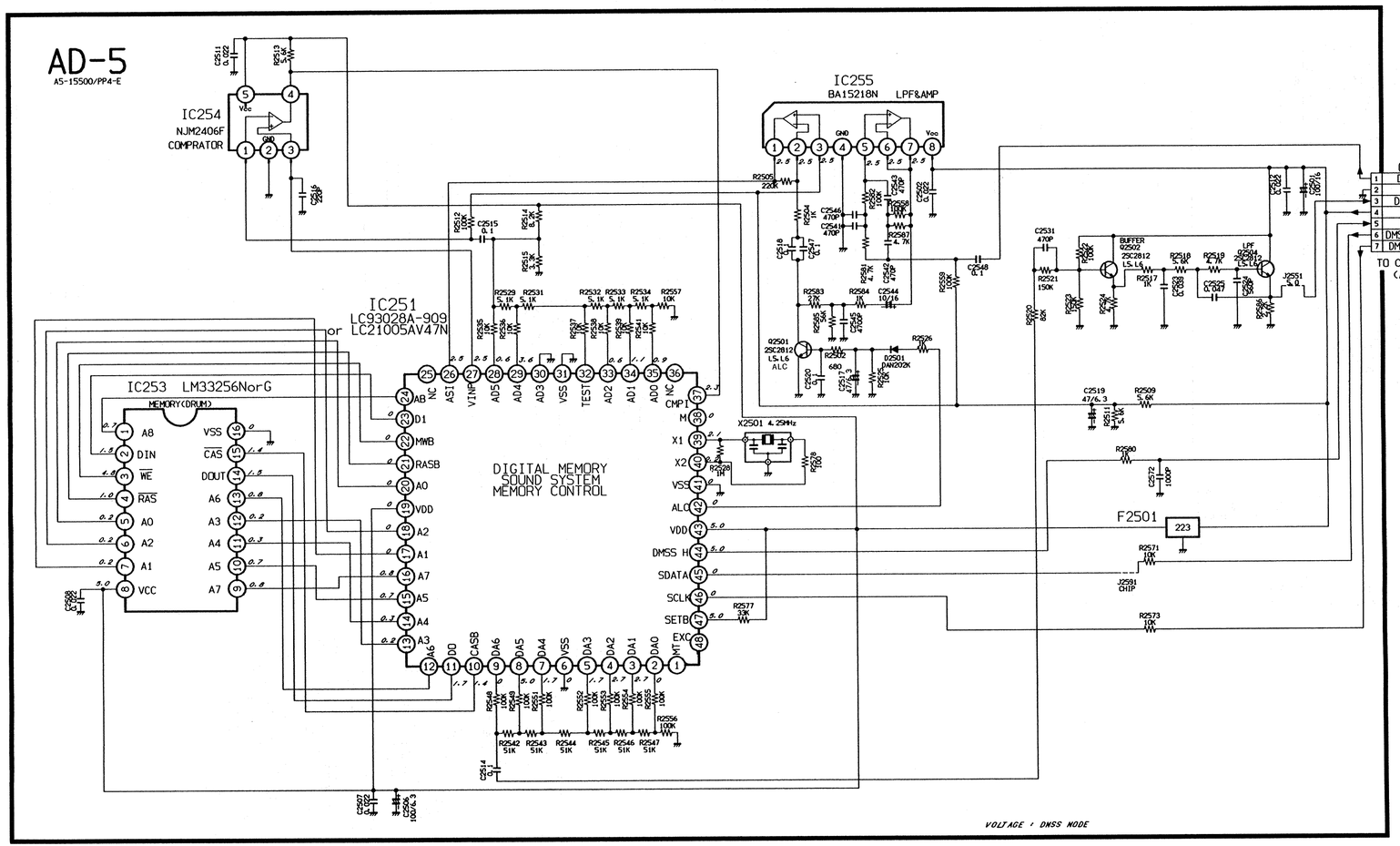


VIDEO CIRCUIT WAVEFORMS

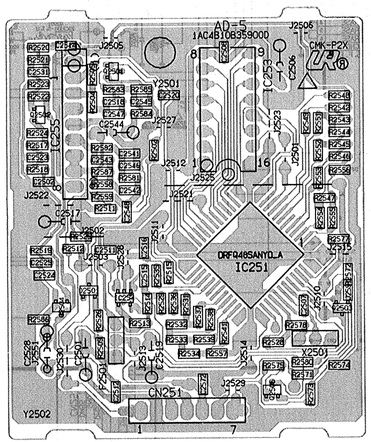
WF-V-TR

TEST LOCATION	WAVEFORM	MODE / LEVEL	TEST LOCATION	WAVEFORM	MODE / LEVEL
IC 101 Pin 1		REC, EE 0.5Vp-p	IC 101 Pin 38 (PB CHROMA IN)		PB 0.3Vp-p
IC 101 Pin 7 (VIDEO IN)		REC, EE 1.0Vp-p	IC 101 Pin 43 (PB FM IN)		PB 0.6Vp-p
IC 101 Pin 11 (VIDEO OUT)		REC, EE 2.0Vp-p	IC 101 Pin 44 TP103 (REC FM OUT)		REC 2.0Vp-p
IC 101 Pin 11 (VIDEO OUT)		PB 2.5Vp-p	IC 101 Pin 46		REC, EE 0.5Vp-p
IC 101 (UPPER) Pin 11 (LOWER) Pin 14		STILL (UPPER) 2.0Vp-p (LOWER) 5.0Vp-p	IC 101 Pin 46		PB 0.6Vp-p
IC 101 Pin 13 Pin 15		PB 0.4Vp-p	IC 101 Pin 47		REC, EE 0.5Vp-p
IC 101 Pin 17 Pin 19 Pin 21		PB 0.4Vp-p	IC 101 Pin 47		PB 0.6Vp-p
IC 101 Pin 38 (REC CHROMA OUT)		REC 0.4Vp-p			

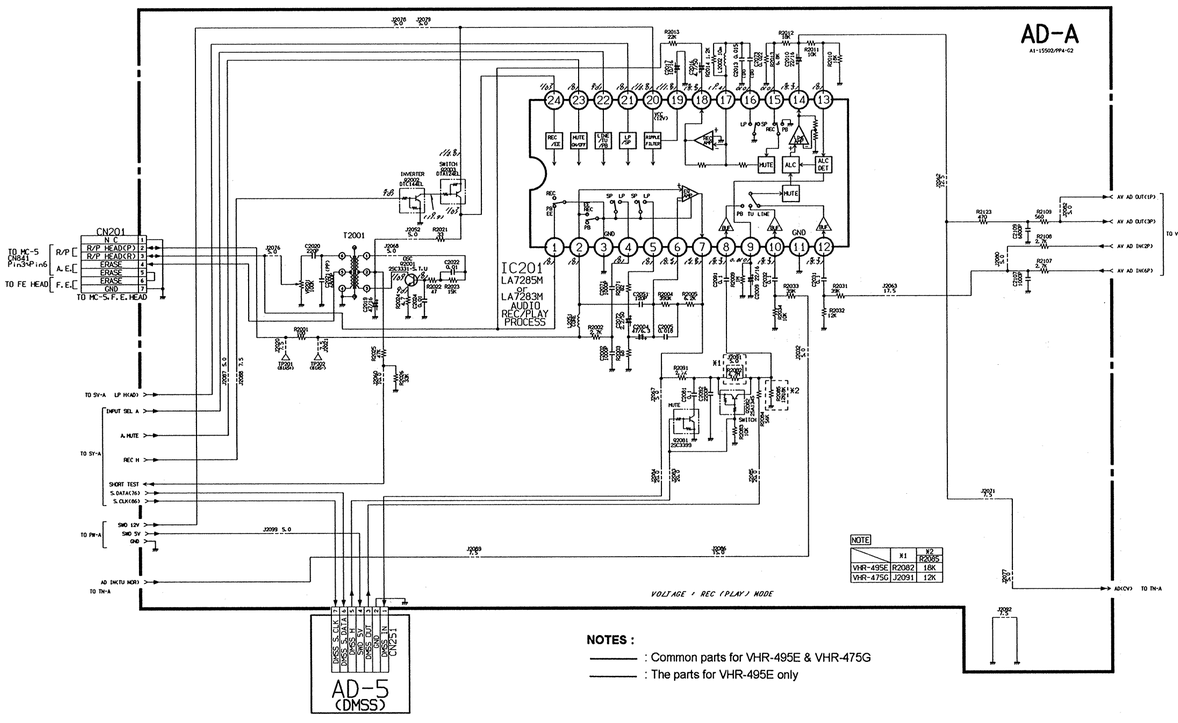
AD-5 BOARD DMSS (VHR-495E ONLY)



AD-5 P.W.B. (VHR-495E ONLY)



CP-1 BOARD (AD-A) AUDIO

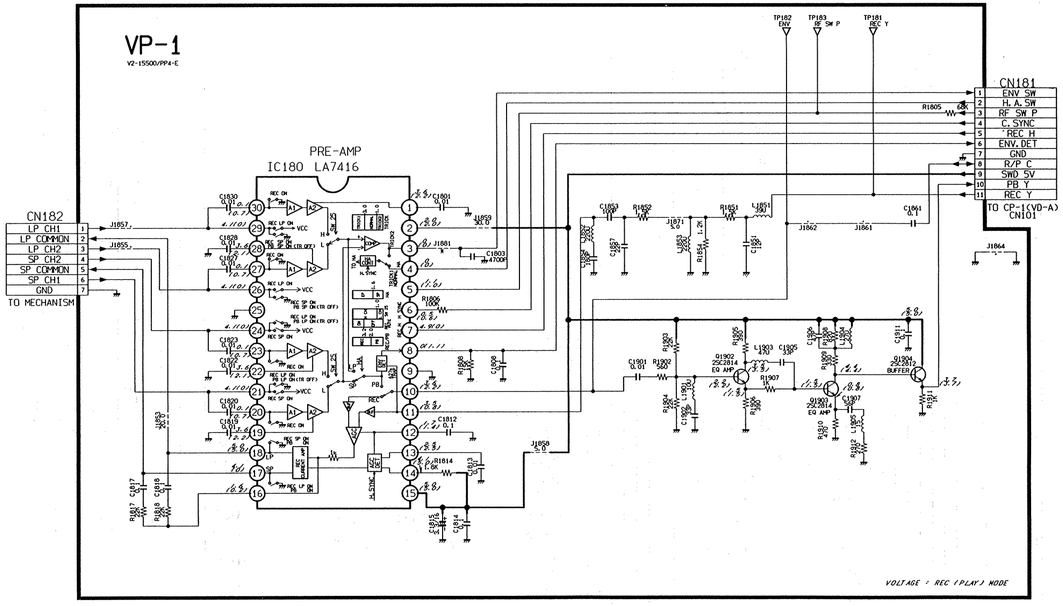


NOTES :

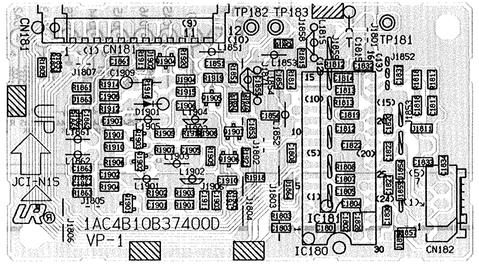
——— : Common parts for VHR-495E & VHR-475G

——— : The parts for VHR-495E only

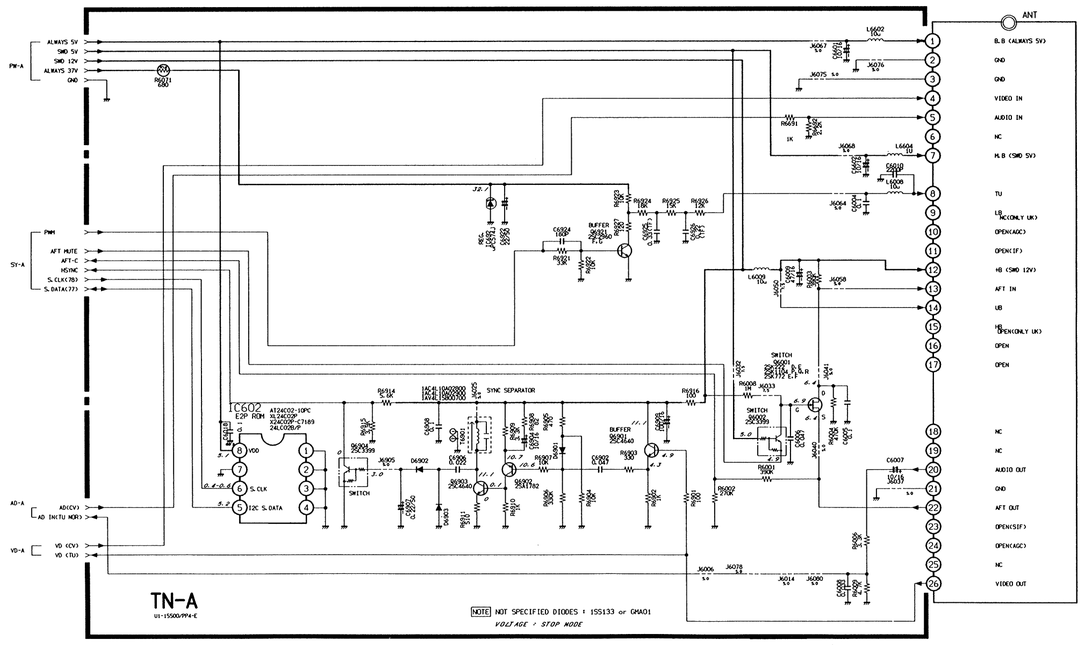
VP-1 BOARD VIDEO PRE-AMP



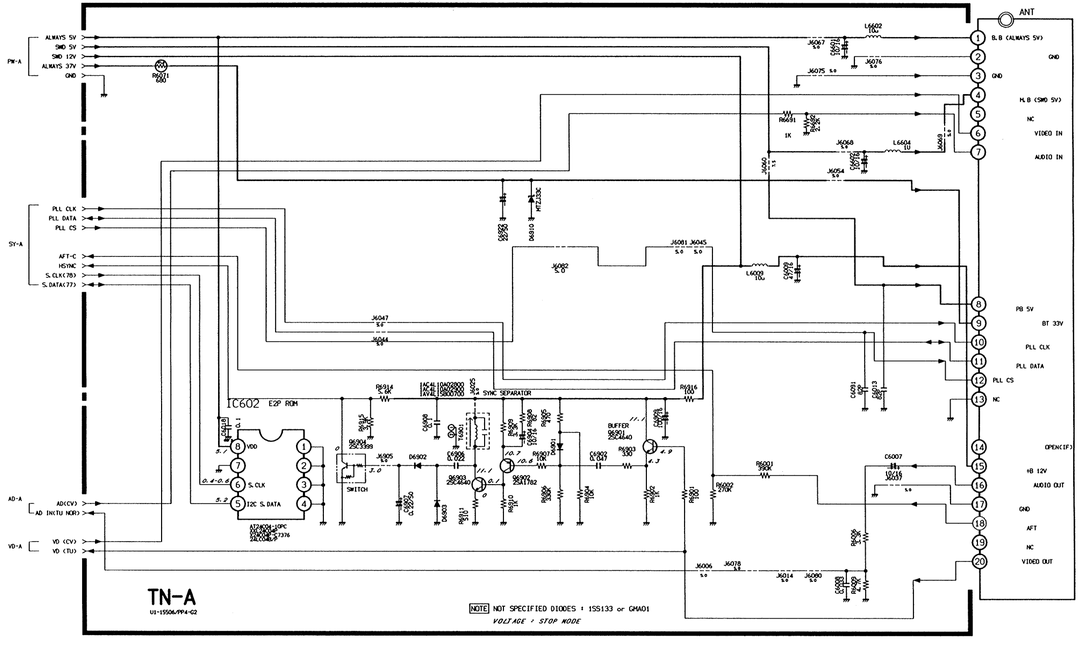
VP-1 P.W.B.



CP-1 (TN-A) BOARD TUNER IF CONNECTION (VHR-495E)



CP-1 (TN-A) BOARD TUNER IF CONNECTION (VHR-475G)



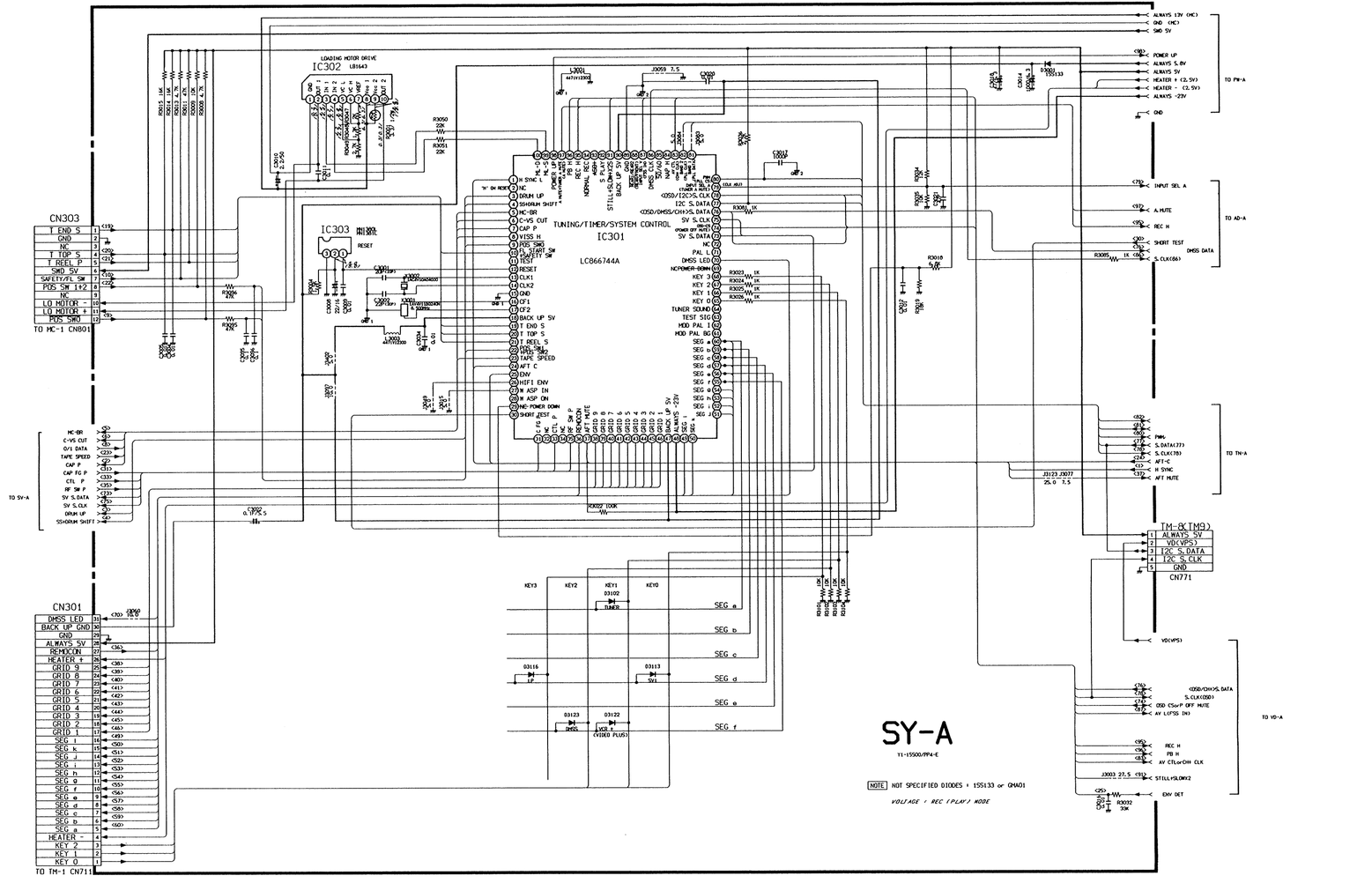
IC301 SYSTEM CONTROL,TIMER, & TUNING CONTROL MPU PIN FUNCTIONS TABLE

No.	Name	I/O	I/O Signal Function
1	H SYNC L	I	Sync. signal input for existing channel discrimination and TV system discrimination.
2	-	-	-
3	DRUM UP	O	Head drum motor rotation speed up signal.
4	SS + DRUM SHIFT	O	Signal for indicating SLOW/STILL modes and alternation of drum motor control data. (3 value voltage)
5	MC - BR	O	Brake signal for capstan motor.
6	C - Vs CUT	O	Cut off for capstan motor control voltage in SLOW / STILL modes.
7	CAP P.	O	Gain down control for Head Motor at SLOW mode.
8	VISS H	I	CTL pulse duty detection signal input. Used for VISS detection.
9	POS SW0	I	Data indicating operation position of mechanism. (0V : SEARCH,STILL,SLOW,STOP,PLAY, and REC modes) (5V : EJECT,REW, and INITIAL modes)
10	FL- START + SAFETY SW	I	Switch input indicating start of cassette loading or discharge by cassette mechanism and detecting accidental erasure prevention tab of cassette tape.
11	-	-	-
12	RESET	I	Initial reset terminal for this IC.
13	CLK 1	-	Clock OSC during power failures.
14	CLK 2	-	Frequency is 32kHz.
15	VSS	-	Ground terminal
16	CF 1	-	IC clock OSC terminal.
17	CF 2	-	Frequency is 6.5MHz.
18	VDD	-	IC power supply terminal.(5Vdc)
19	T. END S.	I	Sensor signal input for tape end detection.
20	T. TOP S.	I	Sensor signal input for tape beginning detection.
21	T. REEL S.	I	Pulse input for detection of take-up reel table rotation.
22	POS SW1+2	I	Data indicating operation position of mechanism. (2V: EJECT,REW ,and INITIAL modes)(3.4V: STOP, PLAY,REC, and F-SEARCH modes) (2.5V: STILL and SLOW modes) (5V: R-SEARCH mode)
23	TAPE SPEED	I	Input of result of tape speed discrimination by digital servo IC.
24	AFT - C	I	Tuner AFT S-curve signal input for tuner AFT control.
25	ENV.	I	Video head envelope detection signal input for ATR function.
26	HiFi ENV.	I	Hi-Fi audio head envelope detection signal input for ATR function. (Hi-Fi model only)
27	WIDE ASPECT IN	I	Wide aspect video system indication signal input.
28	WIDE ASPECT ON	O	Video wide aspect system selection signal.
29	POWER DOWN	I	Power failure detection terminal.
30	SHORT TEST	I	REC mode indication signal input (REC 12V).
31	C - FG P.	I	FG signal input of capstan motor.
32	-	-	-
33	CTL P.	I	CTL head recording / playback pulse signal input.
34	-	-	-
35	RF SW P.	I	RF switching pulse input, created by head drum PG.
36	REMOCON	I	Remote control signal input.
37	AFT MUTE	O	"H" output during TU AFT mute. (V-syn model only)
38	G9	O	
39	G8	O	
40	G7	O	
41	G6	O	
42	G5	O	Display grid outputs (FLD).
43	G4	O	
44	G3	O	
45	G2	O	
46	G1	O	
47	VDD	-	IC power supply input (5Vdc)
48	V LOAD	O	-23V input for FLD drive.
49	SEG I	O	
50	SEG k	O	
51	SEG j	O	Display segment outputs (FLD).
52	SEG i	O	(Includes key-scan output)

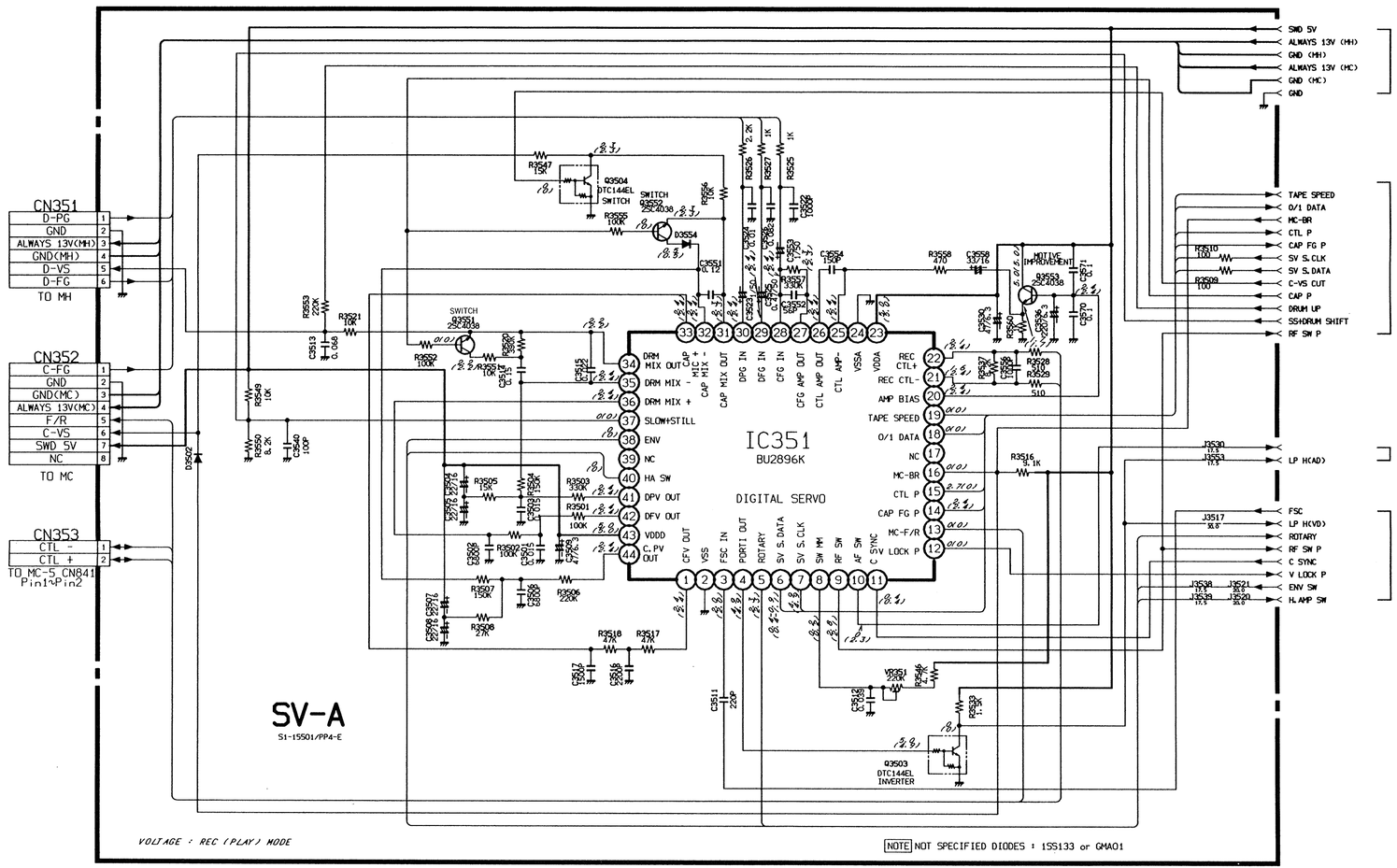
No.	Name	I/O	I/O Signal Function
53	SEG h	O	
54	SEG g	O	
55	SEG f	O	
56	SEG e	O	
57	SEG d	O	Display segment outputs (FLD).
58	SEG c	O	(Includes key-scan output)
59	SEG b	O	
60	SEG a	O	
61	MOD PAL BG	O	Signal for RF output TV-system setting. (PAL-B/G)
62	MOD PAL I	O	Signal for RF output TV-system setting. (PAL-I)
63	TEST SIGNAL	O	Signal for RF test signal output.
64	TUNER SOUND	O	TV system indication signal output (PALI H / others L)
65	KEY IN 0	I	
66	KEY IN 1	I	Operation key data inputs.
67	KEY IN 2	I	
68	KEY IN 3	I	
69	-	-	-
70	DMSS LED	O	Signal for indicating DMSS mode.
71	PAL L	I	PAL mode indication signal input.
72	-	-	-
73	SV S. DATA	O	Output 8-bit X 4 serial data giving operation mode and tracking data,etc., to digital servo IC.
74	OSD CS	O	Chip enable (access) signal output to OSD IC.
75	SV S. CLK	O	The clock pulse for digital servo IC.
76	COMMON DATA	O	Terminal for communication of respective data with OSD IC,DMSS IC,and CH+ IC.
77	I2C S.DATA	I/O	Data exchange with tuning memory,HiFi,VPS,PDC, MTS and NICAM decoder IC.
78	COMMON CLK	O	The clock pulse for HiFi,OSD,CH+,tuning memory, PDC,VPS,MTS and NICAM IC.
79	INPUT SEL A	O	Signal to select audio input source.(except HiFi set)
	TUNER A MUTE	O	Signal for disable the tuner audio signal.(HiFi set)
80	PLL CS	O	Chip enable signal output to tuner PLL tuning system IC. (F-syn model)
	TU PWM	O	Tuning voltage output (PWM signal). (V-syn model)
81	BAND 1	O	Tuning band data(BAND 1 and 2 ; for V-syn model).
	PLL DATA	O	Data exchange with tuner PLL IC (for F-syn model).
82	BAND 2	O	BAND 1 and 2 ; (L,L)=VHF-LOW (L,H)=VHF-HIGH (H-L)=UHF (H,H)=SKIP. (for V-syn model)
	PLL CLK	O	The clock for PLL IC of tuner unit (for F-syn model).
83	CH PLUS CLK	O	The clock pulse for CH+ in/out-select IC.(CH+ model)
	AV CTL	O	Audio input source selecting for audio IC.
84	NAP H	O	"H" output during NTSC (NAP) playback mode.
85	50 / 60	O	"H" output during 60 field mode.
86	DMSS CLK	O	Clock signal for audio DMSS unit.
87	INPUT SEL V	O	Signal for selecting video input source.
	FSS IN	I	CH+ mode control signal input (CH+ model).
88	AV1/AV2	O	Signal for selecting AV-input(video/audio)source/
89	VSS	-	IC ground terminal.
90	VDD	-	IC power supply input (5Vdc)
91	STILL+SLOW+X2S	O	STILL, SLOW, or X2speed modes indication.
92	SPECIAL PLAY	O	Signal to indicate CUE, REV, STILL and SLOW modes.
93	-	-	-
94	NORMAL REC	O	Signal for indicating normal audio recording.
95	REC H	O	Signal for indicating recording mode.
96	PB H	O	Signal for indicating playback mode.
97	A MUTE+TU A MUTE	O	"H" output for disable audio output signal.
98	POWER UP	O	"HIGH" output except when power is off. Indicating that power is ON
99	ML- S	O	Loading motor rotation speed (low / medium / high) indication signal.
100	ML- D	O	Loading motor rotation direction (FWD / REV) indication signal.

PP_TTS

CP-1 BOARD (SY-A) SYSTEM CONTROL (VHR-495E)



CP-1 BOARD (SV-A) SERVO

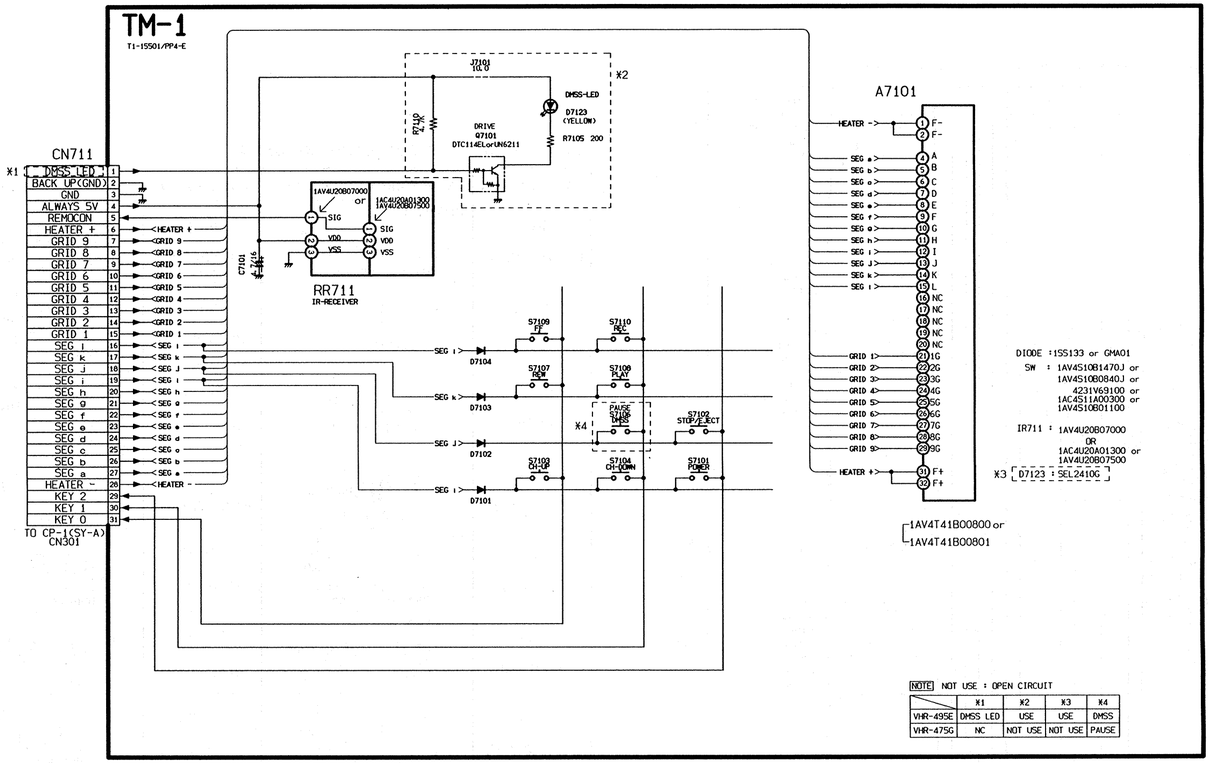


SERVO CIRCUIT WAVEFORMS (IC351:BU2896 Series)

TEST LOCATION	WAVEFORM & MODE/LEVEL	TEST LOCATION	WAVEFORM & MODE/LEVEL
Pin 40 (H.A.SWITCHING)	SLOW PB, 5.0V, 20msec 20msec	**Pin 11** (COMPOSITE SYNC INPUT)	T=20msec, 4.2V
Pin 42 (PWM)	5.0V, 8.66KHz	**Pin 14** (C-FG PULSE)	5.0V, 1513Hz
Pin 41,44,1 (PWM)	5.0V, 69.27KHz	**Pin 15** (CTL PULSE)	PB, 850µsec, 5.0V, 40msec
Pin 3 (FSC INPUT)	0.3Vp-p, 4.43MHz	**Pin 26** (CTL AMP OUT)	PB, 2.0Vp-p, 40msec
Pin 5 (ROTARY)	PB, 5.0V, 20msec 20msec	**Pin 28** (C-FG INPUT)	10mVp-p, 0.66msec
Pin 8 (D-PG MM)	2msec, 2.5V, 7msec	**Pin 29** (D-FG INPUT)	30mVp-p, 1.33msec
Pin 9 (RF SW PULSE)	5.0V, 20msec 20msec	**Pin 30** (D-PG INPUT)	250mVp-p, 40msec
Pin 10 (AF SW PULSE)	PB, 5.0V, 20msec 20msec	**Pin 38** (ENV.SW INPUT)	SLOW PB, 4.0V, 20msec 20msec

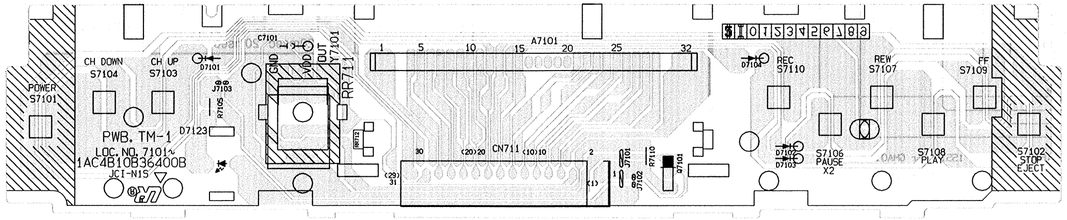
WF-S-CE6

TM-1 BOARD OPERATION KEY & DISPLAY



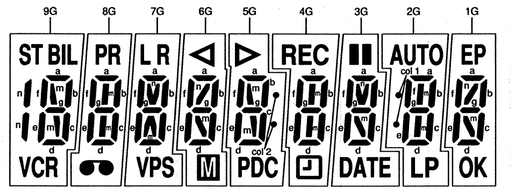
	X1	X2	X3	X4
VHR-495E	DMSS LED	USE	USE	DMSS
VHR-475G	NC	NOT USE	NOT USE	PAUSE

TM-1 P.W.B.



A7101 DISPLAY (FLD) GRID/ANODE ASSIGNMENT DRAWING & TABLE

GRID & SEGMENT ASSIGNMENT

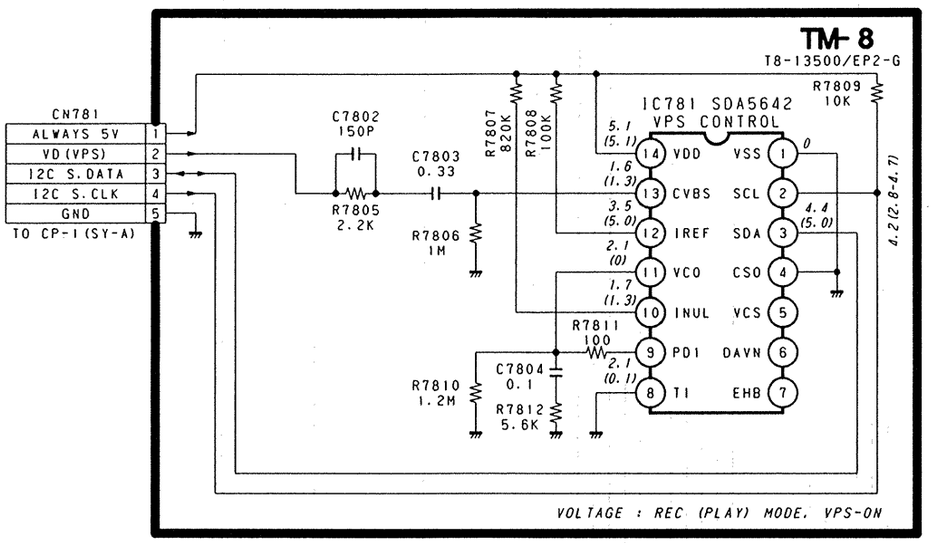


ANODE CONNECTION

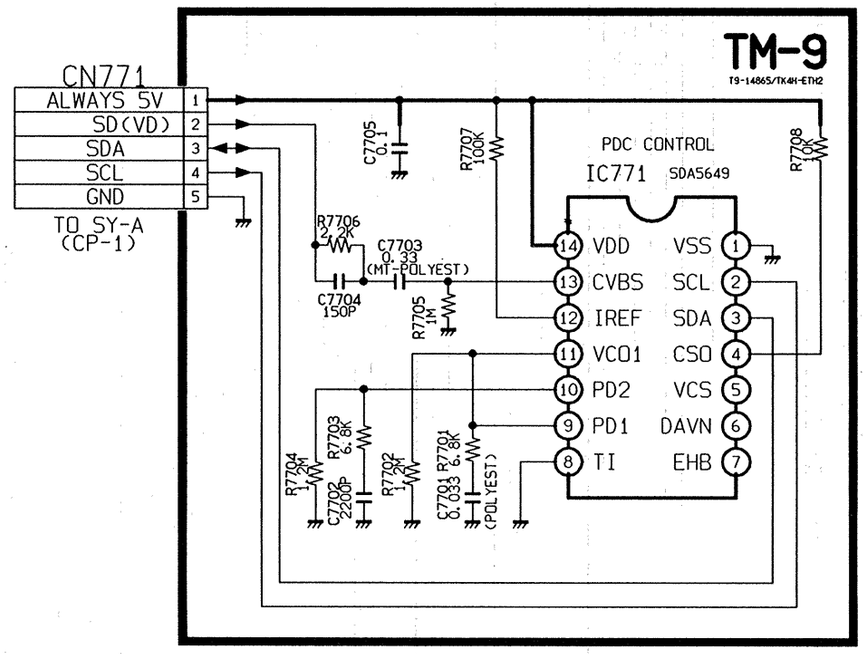
GRID / SEGMENT	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	ST	PR	L	◁	▷	REC	▮▮	AUTO	EP
b	n	—	n	n	—	—	n	—	n
c	a	a	a	a	a	a	a	a	a
d	b	b	b	b	b	b	b	b	b
e	c	c	c	c	c	c	c	c	c
f	d	d	d	d	d	d	d	d	d
g	e	e	e	e	e	e	e	e	e
h	f	f	f	f	f	f	f	f	f
i	g	g	g	g	g	g	g	g	g
j	m	m	m	m	m	m	m	m	m
k	BIL	—	VPS	—	col 2	—	—	col 1	—
l	VCR	👓	R	M	PDC	⏎	DATE	LP	OK

GR-00800

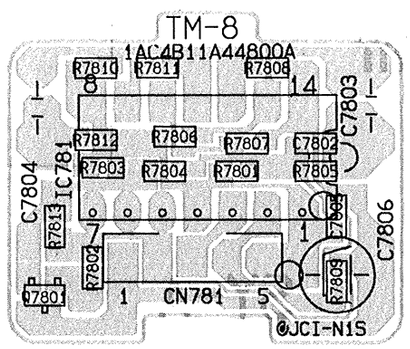
TM-8 BOARD VPS (VHR-475G ONLY)



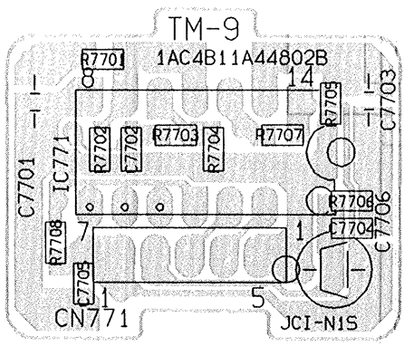
TM-9 BOARD PDC (VHR-495E ONLY)



TM-8 P.W.B. (VHR-475G ONLY)



TM-9 P.W.B. (VHR-495E ONLY)



CP-1 BOARD (SY-A) SYSTEM CONTROL (VHR-475G)